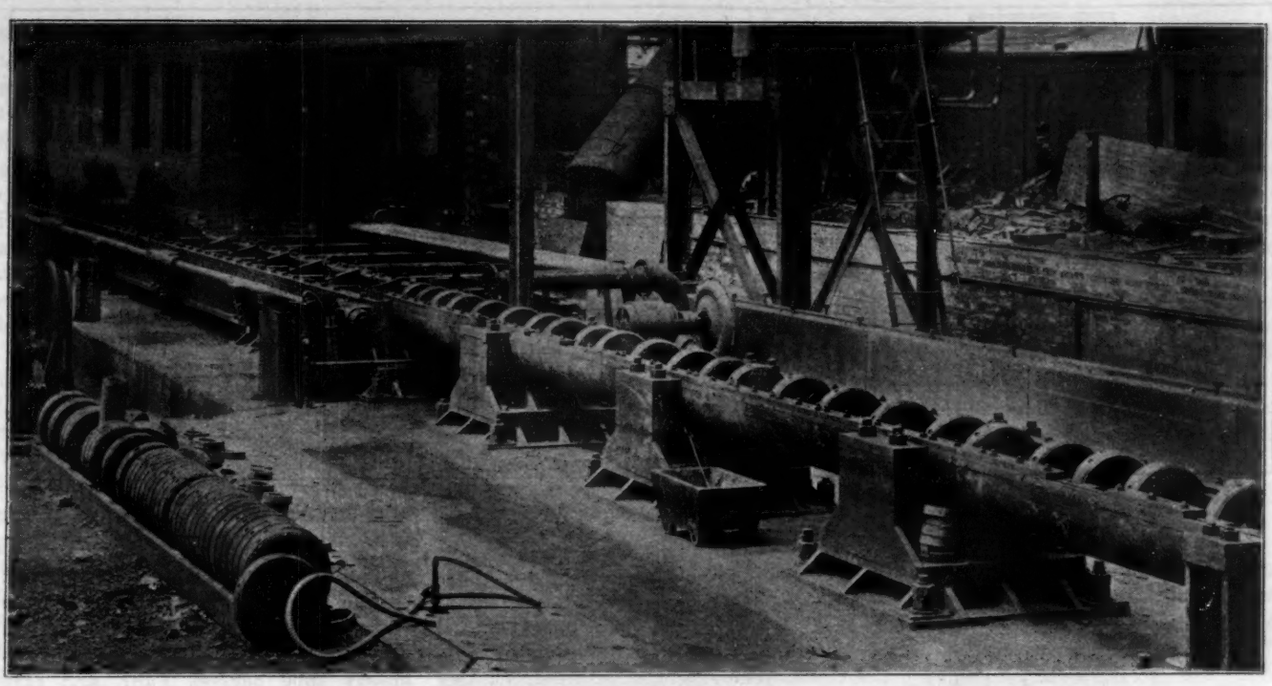

Fig. 1—Finishing end of the push bench with the circular die holders clearly shown. Dies are of hardened cast iron

Making Seamless Steel Tubes By Improved Processes

By E. F. Ross

HOT punching or extending processes for the production of steel tubes first were applied in 1885 and in that same year was granted the first patent for hot piercing solid round steel bars preparatory to making seamless tubing by rolling over mandrels. This process is known as the Mannesmann process and today the bulk of seamless tubing is manufactured by this method. Round steel bar stock comprises the raw material and the piercing operation converts the billet to a hollow cylinder. The most recent development, however, is the perfection of a new process which features the use of square billets. The Wellman-Peters process, as it is called, has been known in Germany for over two years but the most recent and modern installation is at the steelworks of Messrs Howell & Co., Ltd., Sheffield, England. This installation was designed by the Wellman Smith Owen Engineering Corp., Ltd., London, the British associate of Wellman-Seaver-Morgan Co., Cleveland. This plant has been operating about four months. To withstand the severity of the piercing operation in the Mannesmann process, the billet must be of a quality superior to that required in the finished tube. In England, steel billet stock of the necessary quality for piercing costs from $58 to $68 a ton, while square bil-

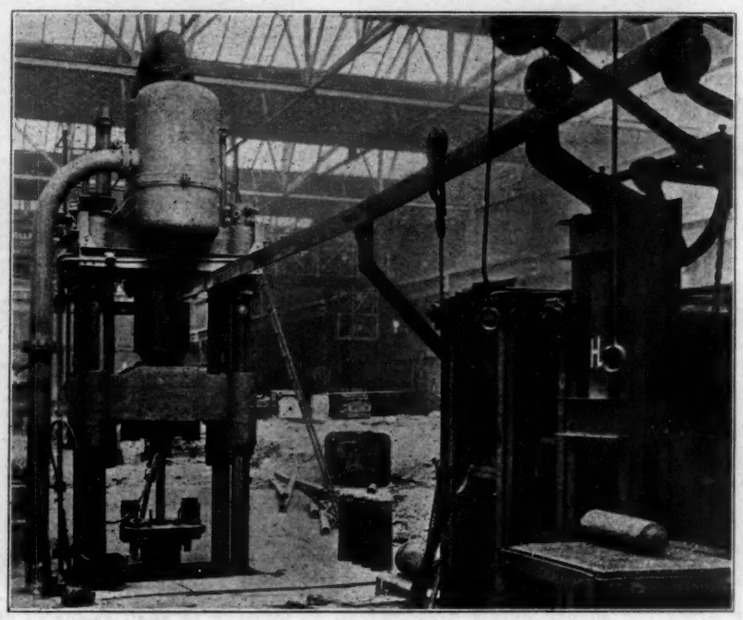

Fig. 2—The hydraulically operated billet forming press

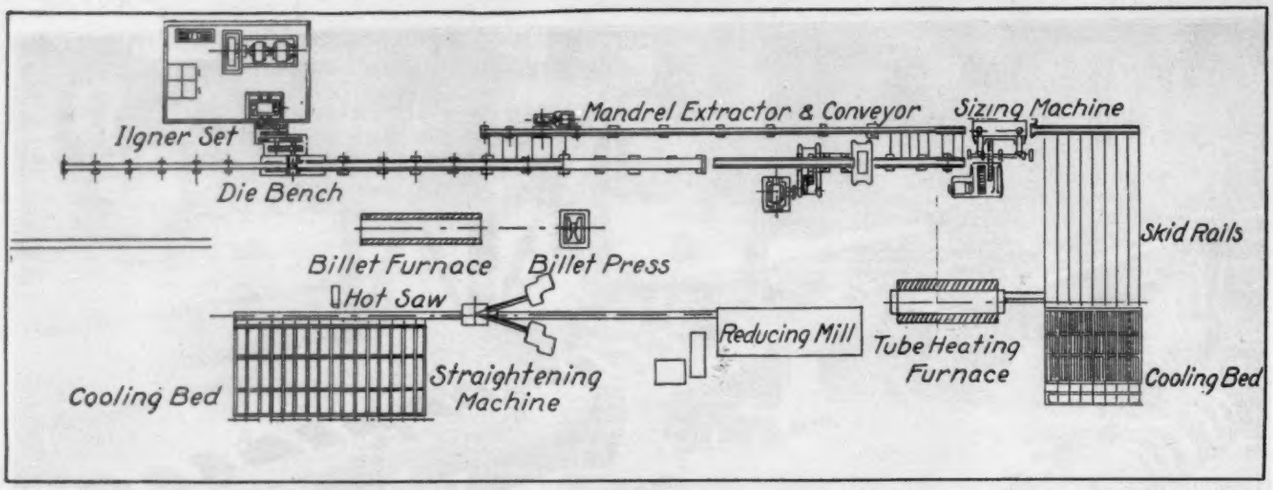

Fig. 3—A typical layout for a push bench tube mill. A reducing mill for tubes of smaller diameter also is shown

lets of locomotive boiler tube quality can be obtained for $41 to $44 a ton. Aside from this economic advantage, the Wellman-Peters process is such that the steel undergoes improvement during working.

The push bench process, as this method is also known, is capable of producing tubes of 2½ to 5½-inch diameters in lengths of 22 feet, and the making of 6-inch tubes is considered practical. When longer lengths in this range of diameter are desired, the automatic process must be employed but where diameters up to 20 inches are required, the pilger process must be used.

Essentially, the push bench process consists in pressing the heated square billet into a hollow thimble-shaped billet which is inserted on a mandrel and pushed through a series of reducing dies. Subsequent steps are passing the tube and mandrel through a polishing or reeling machine, removing the mandrel, passing through sizing rolls and onto the automatic cooling bed. Reference to Fig. 8, a diagrammatic sketch of a tube in process, and Fig. 3, a typical floor plan of a mill layout, will assist in understanding the process.

Depending upon the desired length of finished tubes, the billet stock varies from 3¼ to 6 inches square and is cut into 20-inch lengths. These billets are end charged into a continuous-type gas-fired heating furnace shown in Fig. 4 and are pushed along by a mechanical pusher to a point approximately 5 feet from the discharging door. To insure a thorough soaking and uniform heat, from this point on the billets are turned over in the furnace by tongs. The furnace is operated at a temperature of approximately 2300 degrees Fahr. and care is exercised that the billets are spaced apart slightly to facilitate soaking. Since this process requires no subsequent reheating of the billet or tube, it is essential that the billet reaches the proper temperature for working.

From the furnace the heated billets are taken to the vertical press shown in Fig 2 which punches them into shell-shaped hollow billets and ejects them automatically on the return stroke of the press. Less than five seconds is required for punching the billet, a feature which is extremely important for concentric

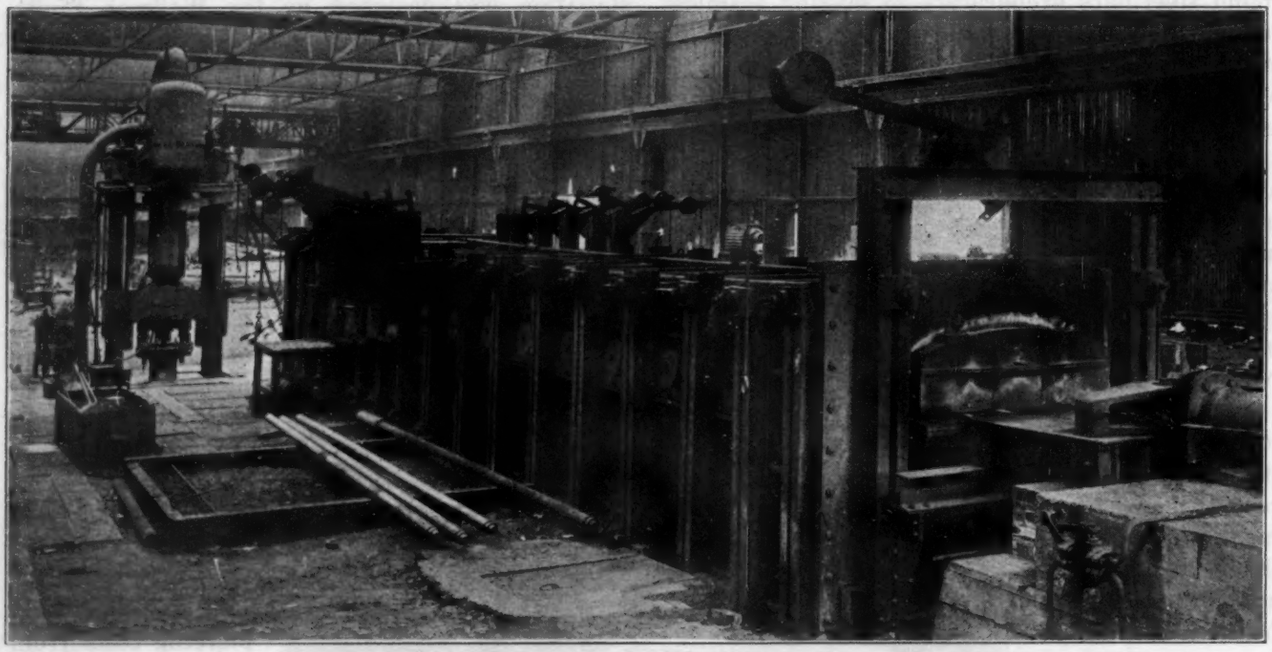

Fig. 4—The furnace which heats the square billets preparatory to forming to shell shape in the press at the left. One of the mandrels in the foreground has a formed billet on the end

punching and preserving the life of the vertical press mandrels. Low pressure water is employed to bring the mandrel down onto the hot billet, while for punching the hole high pressure water is used. On each return stroke the low pressure water is forced back into its container and at the same time the hollowed out or thimble-shaped billet is ejected by means of an ejecting pin in the bottom of the die.

The hollow shell-shaped billet now measures approximately 21 inches in length, the closed end being slightly convex after the punching operation. Without additional heating the billet is taken to the push bench and placed on the end of a push bench mandrel. These mandrels, several of which may be seen lying on the cooling rack in Fig. 5 and adjacent to the heating furnace in Fig. 4, are solid steel rods approximately 22 feet long. The push bench consists of a long heavy steel rack and pinion driven by an electric motor. A lug on the rack engages with the end of the mandrel pushing bar which is provided with a socket in which the mandrel end is fitted. The mandrel bar pushes the mandrel forward, forcing the shell-shaped billet through a series of 10 or 12 ring dies at a carefully adjusted range of speeds. This operation requires about seven seconds.

Guides Prevent Deflection

Fig. 5 shows the pushing end of the bench and the guide bearings for the mandrel, while Fig. 1 shows the finishing end. The mandrel bar has a series of supports spaced equally along its entire length to prevent deflection under the heavy pressure exerted by the rack. As the bar moves ahead, each support is in turn carried forward and comes in contact with the support ahead of it until, at the end of the stroke, all of the supports are grouped at the far end of the bench. The supports are fitted with spring caps which cause them to cling to the mandrel pushing bar and, on the back stroke of the rack, are returned consecutively to their original positions. The ring dies are made of hardened cast iron and are supported in the 10 or 12 die holders. After passing through the last die, the tube arrives at the extreme end of the ring bed made to the correct length and required gage but it is firmly fixed on the mandrel.

Up to this point the Wellman-Peters process is identical with the Erhardt hydraulic process which has been used on the Continent for many years. In the latter, the next operation is to strip the tube from the mandrel, an operation which is accomplished with difficulty because the shrinkage of the tube on the mandrel produces an excessive gripping. In the new process, however, the tube still carried ahead on the mandrel is moved ahead from the push bench and passes through a heavy reeling machine with barrel rolls. The action of these rolls increases the diameter of the tube and loosens the tube on the mandrel and permits its easy removal. In addition, this operation in the reeling or polishing machine improves the finish of the tube both inside and outside.

Fig. 5—Mandrels are cooled on a bed employing an air blast

At this point, the tube with the mandrel still inside is skidded over sideways to the mandrel extracting device where the end of the mandrel is gripped and withdrawn from the tube. As a result of having been forced through the dies with an extremely hot billet on the end, there is a tendency for the mandrel to show a minute increase in size which unless corrected will produce in subsequent passes over the push bench tubes of excessive inside diameter. To correct this enlargement, therefore, the extractor pulls the mandrel through a sizing die which by a simple scraping operation brings the mandrel back to its normal size. Following extraction, the mandrels pass to the mandrel cooling bed adjacent to the billet press where they rest until needed. While lying on the cooling bed the mandrels are cooled by means of an air blast directed on the mandrel ends through a slotted air duct. This cooling device may be seen in Fig. 5.

The tube, which has been left lying in front of the mandrel extracting device, passes now to the hot saw and has the solid end remaining at the front sawed off before it is passed through the sizing mill. If the tube is to be cold drawn after sizing, this end is not sawed off as it is used as a grip in the cold drawing process. The sizing mill consists of three pairs of grooved rolls which insure correctness of the outside diameter of the tube. This operation is necessary because the pressure which is used in reeling the tube off the mandrel in the reeling machine cannot be regulated exactly due to the heat variation in the tube, consequently the tube is slightly oversize.

After passing through the sizing mill, the tubes are delivered to the automatic cooling bed in a finished condition. It will be recalled that no heat has been applied to the tube throughout the process, the original heat in the billet being sufficient to carry the work through to completion. The billet passes from the forming press to the push bench, polishing mill, reeling mill and cooling bed so rapidly that a reheating operation is unnecessary. This economy is reflected in the cost of production. An additional advantage gained by the single heating is that the tube is delivered to the cooling bed in an annealed condition. Tubes taken directly from the cooling bed have passed

tests required of annealed specimens.

When tubes smaller than those delivered from the sizing mill are required, a reducing mill is used in conjunction with the Wellman-Peters process. A typical layout including a reducing mill is shown in Fig 3. Tubes from the cooling bed are placed in the reheating furnace adjacent to the bed and are brought up to a temperature of about 1650 degrees Fahr. From this furnace they are passed through the reducing mill which consists of a series of horizontal and vertical rolls, every other pair of rollers being driven, the remainder being idlers. In one pass, the mill is capable of reducing the tube to one-half of its original diameter, if desired. This reduction, of course, gives a consequent increase in length and a slight increase in wall thickness.

The new mill at Sheffield is capable of producing 1000 tubes on a single mandrel. Furthermore, one mandrel will produce different gages of the tube of the same diameter, the variation in outside diameter being taken care of by the dies and the sizing mill. Approximately 90 tubes of 2½-inch outside diameter and No. 10 gage and in finished lengths of 22 feet can be turned out each hour. This amounts to about 3 tons per hour, a rate which remains approximately the same for larger sizes of tube. The total loss of metal from the charged billet to the finished tube averages from 12 to 15 per cent.

As was stated previously, tubes ranging in diameter from 5½ to 20 inches are produced advantageously by the pilger process. This method has been used on the Continent for many years but only one mill of the type is located in the United States and it is small. With the development of more efficient and modern equipment, however, the process is attracting favorable attention in this country. One double mill installation now is being made at the plant of the Youngstown Sheet & Tube Co., Youngstown, O.

The steel ingots or blooms used in the pilger process are round and vary in diameter from 10 to 18 inches and in length from 3 feet 6 inches to 5 feet, depending upon the diameter, gage and length of tube which is to be produced. These blooms are charged onto the skids of a continuous heating furnace and are rolled down through the furnace by a mechanical turning machine which runs on rails on each side of the furnace. Larger blooms may be pushed down the furnace by means of a hydraulic pusher, but it is not desirable as it is impossible to get a soaking heat in the blooms unless they are kept apart and rolled over by the ingot turning machines. Successful tube making by the piercing and pilgering process depends to a large extent upon the thoroughly uniform and soaking heat given the bloom, consequently the heating furnace is specially designed.

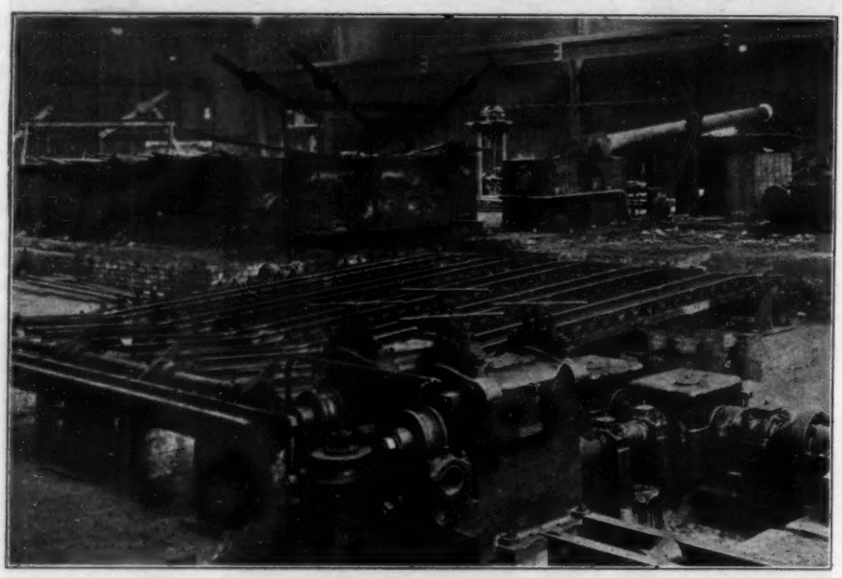

Fig. 6—Finished tubes pass from the sizing mill to this cooling bed

A good idea of the equipment required in the pilger process and the operations followed may be gained from a study of the layout in Fig. 7. After a bloom has been heated thoroughly, it is passed on to the live roller gear leading from the furnace to the piercing mill and delivered directly into the feeding trough of the mill. A hydraulically-operated pusher then pushes it forward until it is gripped between the working rolls of the piercing mill and these rolls, being set on an angle one with the other, grip and force the ingot forward over a piercing head until the pierced piece is delivered on the far side of the rolls.

The piercing head is of special steel, conical in shape, and is carried on a mandrel which in turn is supported by an abutment bearing at its extreme end. Design of the abutment bearing varies for different sizes of piercing mills; usually, however, the mandrel is quickly detachable from the abutment bearing and the abutment gate which carries the bearing swings back and allows the hollow bloom to pass out on the live roller beyond. Formerly in piercing ingots, the practice was to employ three rolls in the piecing mill; two of which were working rolls and the top one an idle roll. With this method the center of the ingot being pierced was some little distance above the line drawn between the centers of the two working rolls. In piercing mills of later design, four rolls are employed, the two on the side being working rolls and the top and bottom rolls acting as guides.

Mechanical Operation Is Provided

From the piercing mandrel the hollow bloom is conveyed to the pilgering mill, this step necessitating the swinging open of the thrust bearing or abutment gate on the end of the mandrel. This permits the hollow bloom to run forward on the live rollers until it is clear of the abutment bearing and mandrel. The abutment gate is swung open hydraulically, even the bolt which holds it in a closed position being operated by the same means. Formerly the bearing was held closed by a latch and required manual operation.

A mandrel centering device holds the piercing mandrel central and on the larger machines a hydraulic device allows the live rollers beyond the abutment bearing to be lowered so that the abutment gate may be swung open. From the piercing mill, the hollow bloom is taken without reheating to the pilgering mill and placed on the pilger mandrel. The rolls are rotating constantly in a direction against the mandrel, while the mandrel together with the hollow bloom are fed forward slowly between these rolls at a constant speed.

Each time that the rolls grip the hollow bloom, they force it back out of the rolls, this back motion being absorbed by an auxiliary air cylinder which is carried on the sliding frame operated by hydraulic feeding cylin-

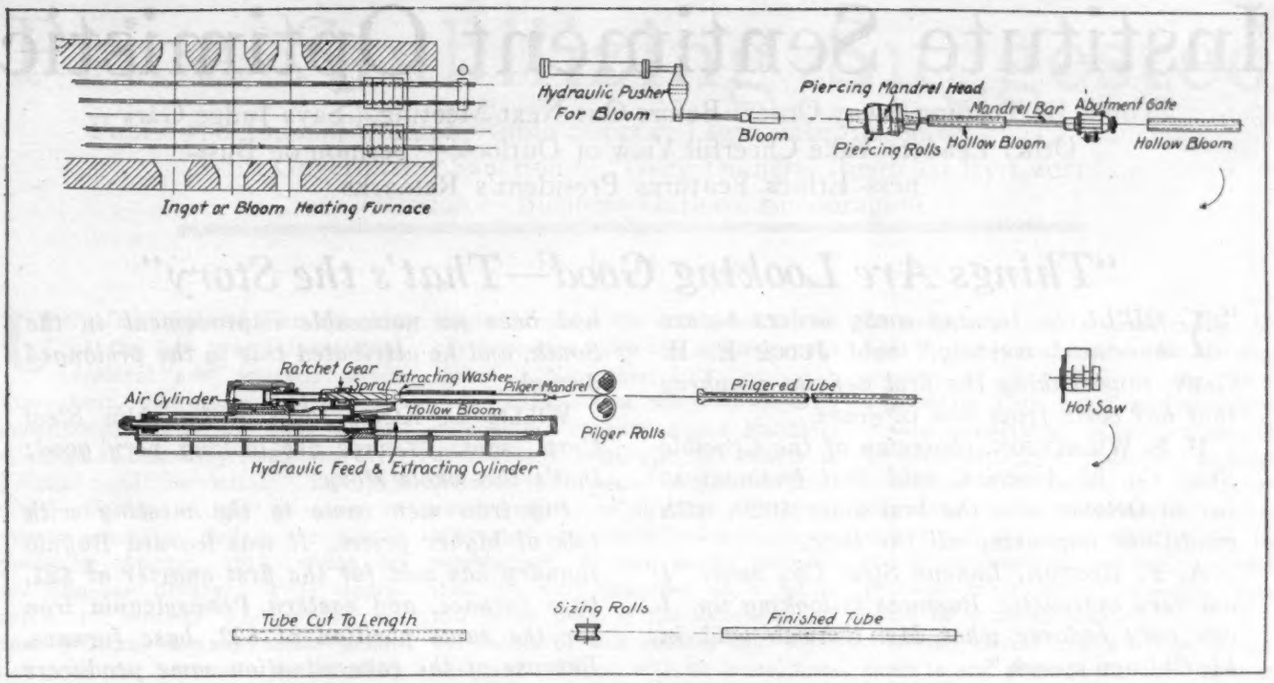

Fig. 7—Diagrammatic sketch of the steps in making seamless tubes by the pilger process. Note the mill construction

ders. With each recoil, the spindle behind the pilger mandrel automatically turns the hollow bloom through a 90-degree angle, the purpose of this action being to subject a different side of the hollow bloom to the rolls with each forward feed.

For a complete understanding of the pilgering operation, a clear conception of the unusual roll design is necessary. The two rolls, as indicated in Fig. 9, are of equal diameter and consequently revolve at the same speed. Let us suppose that a hollow bloom is to be made into a 6-inch tube. Each of the two rolls has a combination semi-elliptical and semi-circular groove cut around between half and three-fourths of its circumference, *BDCA*. At point *B*, the groove is semi-elliptical and has a horizontal diameter of approximately 10 inches and a vertical diameter

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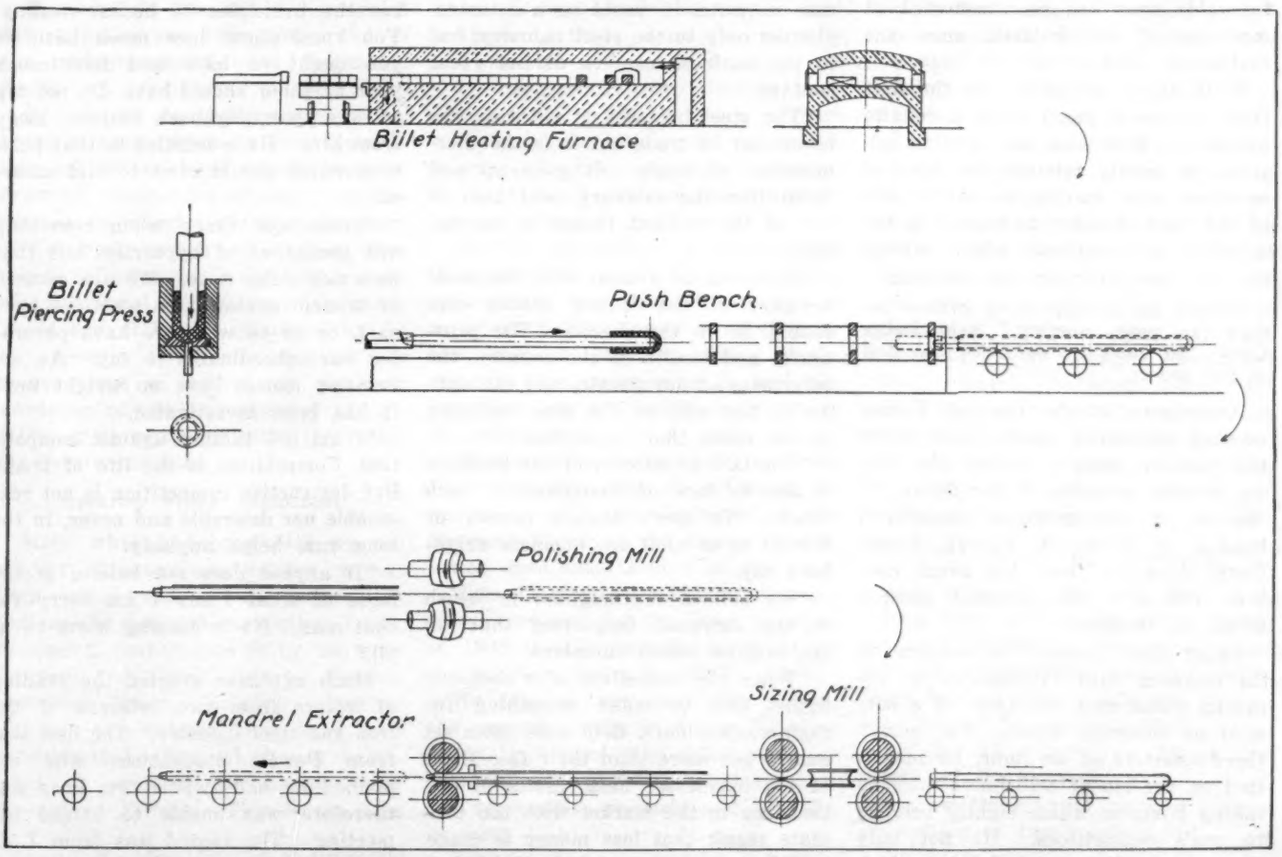

Fig. 8—Diagrammatic sketch showing the steps in making a tube by the push bench process

Institute Sentiment Optimistic

"You'll Be Turning Away Orders Before Our Next Meeting," Says Judge Gary—Other Leaders Take Cheerful View of Outlook — Sermon on Business Ethics Features President's Remarks

"Things Are Looking Good—That's the Story"

"YOU'LL be turning away orders before our next meeting," said JUDGE E. H. GARY, *thus making the first definite prophecy that has come from him in years.*

H. S. WILKINSON, *chairman of the Crucible Steel Co. of America, said that business so far in October was the best since* 1920, *with conditions improving all the time.*

A. F. HUSTON, *Lukens Steel Co., said: "I am very optimistic. Business is looking up. I can only endorse what Mr. Schwab said in his Chicago speech."*

JAMES BOWRON, *Gulf States Steel Co., was not as cheerful as most others. He said there had been no noticeable improvement in the South, and he attributed this to the prolonged drought.*

WILLIS L. KING, *Jones & Laughlin Steel Corp., said: "Things are looking very good; that's the whole story."*

Pig iron men came to the meeting with talk of higher prices. It was learned Buffalo foundry has sold for the first quarter at $21, *base furnace, and eastern Pennsylvania iron for the same position at* $22, *base furnace. Because of the coke situation some producers expressed fear of committing themselves on larg tonnages of iron, even at higher prices.*

PRONOUNCED optimism over the outlook for business was the outstanding feature of the twenty-eighth general meeting of the American Iron and Steel institute, at the Hotel Commodore, New York, Oct. 23. The prevailing sentiment was the most favorable that has been reflected at meetings of the institute since the spring of 1920.

E. H. Gary, president, for the first time in several years made a definite prophecy. Following his opening address, he gently rebuked the host of members who started to shuffle out of the huge chamber to engage in the informal conversations which always are of importance at the meeting.

"You'll be turning away orders before the next meeting," said Judge Gary, "so don't go out into the hall to get orders."

Attendance at the banquet Friday evening numbered nearly 1400, while the number present during the day was greatly in excess of that figure. At request of the program committee, headed by James A. Farrell, Judge Gary, departed from his usual custom, and read his prepared address after the banquet.

Judge Gary opened the meeting in the morning with extemporaneous remarks which took the form of a sermon on business ethics. For nearly three quarters of an hour, he moralized on the sin of selfishness such as taking business which rightly belongs to one's competitors. He not only clearly defined the sort of thing which constitutes a violation of the business codes, but he painted a warning picture of the consequence of such violations. The following is a summary of what Judge Gary said on the subject of business ethics.

"If anything serious happened to this institute, it would be a catastrophe not only to the steel industry, but to the business centers of the great country.

"The steel business is not only the barometer of trade but it is the thermometer of trade. It goes up and down like the mercury, and that is one of the saddest things in our industry.

"There is no reason why the steel industry of the United States ever should be in the dumps. The prosperity and wealth of the country, the enterprise of our people, and the ability of the men in the steel industry should make that impossible.

"The lack of success in our business is due to lack of confidence in each other. We don't always believe or depend upon what our business neighbors say.

"We believe our neighbor is selfish in the extreme, forgetting that we are just as selfish ourselves.

"When the executives of a company figure how to make something for their stockholders, they sometimes set out to get more than their fair share of the business. This results in disturbance in the market with the ultimate result that less money is made.

"We are on the eve of great prosperity. I make the assertion that to the extent to which our mills are filled and our order books are large, our honesty in dealing with each other will increase accordingly.

"When business again tapers off and times are not so good, let us remember the principles of honest dealing. You know about how much business you ought to have and how much your neighbor should have. Do not try to take your neighbor's business away from him. He is entitled to that business which should come to him naturally.

"There are times when somebody will accuse us of hypocrisy, but that does not make it so. We are accused of misrepresentation in what we have said, or as to what we have permitted our subordinates to say. An accusation should have no weight until it has been investigated.

"I am not talking against competition. Competition is the life of trade. But destructive competition is not reasonable nor desirable and never, in the long run, helps anybody.

"If anyone does not believe in the logic of what I say I am sorry for that man. He is causing harm to us all."

Much applause greeted the reading of letters from two veterans of the iron and steel industry. The first was from Powell Stackhouse, who explained he had twisted his knee and therefore was unable to attend the meeting. The second was from J. G.

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Price Stabilizing Suggested

Public and Judicial Opinion Would Support Legitimate Action by Steel Producers, With Government Sanction — "Gary Dinners" Justified By Court Decision — Business Outlook Encouraging

By E. H. Gary

UNQUESTIONABLY at the close of the late war international, national and domestic affairs throughout the world had become maladjusted. The war was a culmination of unhealthy conditions, civil, political and industrial. The full story relating to the progress of events occurring during the decade preceding August, 1914, would fill an immense library. It is appropriate to consider whither we are now drifting; toward better conditions, or the reverse. As affecting our country generally and our business particularly, is the trend of affairs favorable or otherwise? There is time only to merely glance at some of the tendencies before and after the war.

From time to time since the armistice was signed our attention has been called to disagreements, disputes and controversies between different nations which shocked our sensibilities and created in our minds distrust of future peace and tranquility, and of the permanence of even civilization itself.

Of almost equal importance and possible consequence is the repudiation of, or at least indifference to, financial obligations of some of the nations to others. Many great wars of the past have resulted from economic delinquencies. Only by reason of subnormal conditions of minds would any nation be permitted by its own people to wholly neglect for many years to make any payment whatever on its indebtedness to another, or to settle amicably the terms for future payment.

Locarno Plans Important

Since what has been said on the subject of peace was written, it has been noted with great satisfaction that at the Locarno convention, lately in session, participated in by the governments of Great Britain, France, Germany, Italy, Belgium, Czecho-Slovakia and Poland, there have been consummated plans which are calculated to preserve permanent peace throughout Europe. This is the best single thing for the entire world that has happened since the armistice was signed in November, 1918.

We shall see a working majority in congress supporting the President at the next session in his efforts to improve the economic situation. Their constituencies are directly, pecuniarily interested, and will influence their representatives. It now seems probable that the next congress as a whole will stand high in the estimation of the people of this country and other countries. There will be more harmony, less discord. War effects are disappearing.

Crime Is Prevalent

Local conditions in the states and especially in the large cities in this country in some respects are deplorable and disheartening. Crime is rampant. Violent and brutal crimes are numerous. They do not at present seem to be decreasing. They are about as bad as war in volume, and a thousand times worse in malignity and cruelty.

During the last two decades business prosperity has been in a measure hampered and interrupted by harsh, hasty and often improper attempts to apply and enforce the Sherman law, so called.

On Dec. 10, 1908, at a dinner given to representatives of the steel industry an address was made by a leading member of their number relating to the panic of 1907, the efforts of the industry for overcoming it and the Sherman law applicable to restraint of trade.

That address, so far as it concerns these remarks, was in substance in harmony with two decisions of the Supreme Court of the United States, which were made June 1 of this year.

Thus it may be said that the attitude assumed by the steel industry in 1908 is substantially approved by the Supreme Court in 1925.

We further may say with reason, the present tendency of the Supreme Court is toward the stabilization of business and property so far as it can reasonably, properly and lawfully be done.

Suppose the department of justice would be willing to participate. If meetings should occasionally be held by the manufacturers for the discussion of business on the lines pursued in 1907 and a representative of the department of justice should be designated by the attorney general to attend and listen, and whenever necessary and appropriate to advise concerning the law, what would be the effect upon the steel business, and perhaps other lines? Possibly this could be accomplished.

If one should ask whether or not there is any panacea for the ills that sometimes appear to the moral, political, social or economic life of the nation, the answer is: "Yes, by the general adoption and practice of the Golden Rule."

The iron and steel industry of the United States, big as it is, cannot alone secure the general adoption of the Golden Rule in business. It can do much in this direction. Perhaps it has done considerable; but it is far from perfect, even as between its own members. Live, active competition is desirable; but destructive, dishonest or unfair competition is deplorable and deprecatory.

The iron and steel business in this country is good and should be considered satisfactory. It has been during the calendar year and still is as good as predicted, and even better than we had reason to expect. And it is growing better. The imperative demands of consumers are large and increasing. The seeming necessities are immense. Notwithstanding the producing capacity of the country has doubled, or more, within the last ten or 15 years, the present operations are about 80 to 85 per cent of capacity on the average.

Puts Blame on Producers

But some of you may say that, taking into account the large investment of capital by reason of extra cost of construction and otherwise, there has not been a fair and reasonable return in profits. Well, whose fault is it? Can you blame the wealth of the country, or the lack of crops, or the climate, or the present disposition of the government?

No, it is our own fault. It is be-

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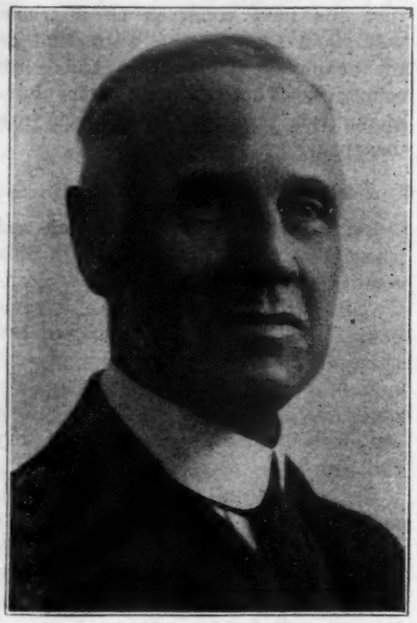
Abstract of address delivered at semiannual dinner of American Iron and Steel institute, New York, Oct. 23.

Wrought Iron Problems Stressed by Speakers

F. H. DECHANT

FREDERICK H. DECHANT, of Wm. H. Dechant & Sons, Reading, Pa., consulting engineers, was born in that city Aug. 31, 1887, and was graduated from University of Pennsylvania as a civil engineer in 1910. He has been with his present company from 1910-1917, being in the navy from 1917-1919 in the bureau of yards, and 1919-1920 with his present company and acting chief engineer for the Reading Steel Castings Co. Since 1920 he has been with the Dechant organization and acting chief engineer for American Chain Co., American Cable Co. and subsidiaries, consulting engineer for Page Steel & Wire Co., and chief engineer for Reading Steel Castings Co. He is a member of the American Society of Civil Engineers, American Society of Mechanical Engineers, American Institute of Mining and Metallurgical Engineers, and others.

MAX SKLOVSKY, chief engineer for Deere & Co., Moline, Ill., was born in Chicago and educated in schools there, later graduating from Armour Institute of Technology with the degrees of bachelor of science in electrical engineering and a masters degree. From 1901-1911 he was connected in various designing and constructing engineering positions, serving as chief consulting engineer for Deere & Co. since the latter year. He has specialized in fuel problems and foundry engineering and production. Mr. Sklovsky has contributed widely to technical publications presenting results of various researches which he has conducted.



H. E. SMITH

ENGINEER of tests for the New York Central lines, in charge of testing laboratories and mill inspection of car, locomotive and other material and equipment, is the position which H. E. Smith has held since 1922. Mr. Smith was born in Neponset, Ill., and attended schools in Marshalltown, Iowa. He was graduated from Massachusetts Institute of Technology. Mr. Smith served the St. Paul railway as chief chemist, in 1902 becoming chemist and engineer of tests for the Lake Shore & Michigan Southern railway. When this road consolidated into the New York Central he became engineer of tests then. In 1920 he was appointed engineer of materials, especially on track material, and in 1922 was appointed to his present position. His paper for this meeting was on "Manufacture and Use of Wrought Iron."

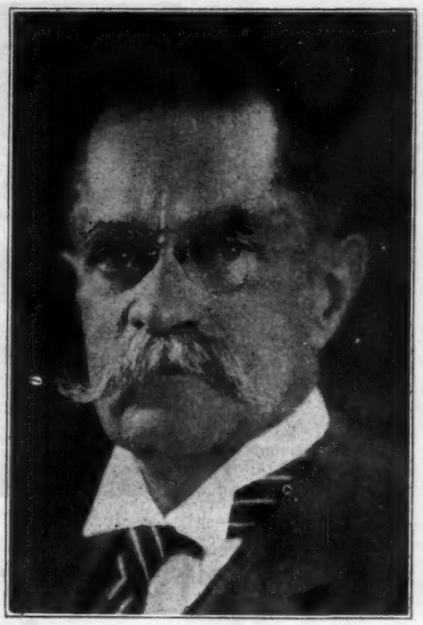
MAX SKLOVSKY

METALLURGY has formed the chief industrial activity of James Aston, metallurgist for the A. M. Byers Co., Pittsburgh. Mr. Aston was graduated from University of Wisconsin with electrical and chemical engineering degrees. He spent several years after graduation in practical foundry and steelworks training. For three years he was investigating iron and alloys under grant of the Carnegie Institution of Washington. Following about ten years in metallurgical instruction at University of Wisconsin and University of Cincinnati, he came to Pittsburgh in 1914 as metallurgical engineer for the United States bureau of mines. He was appointed metallurgist for the A. M. Byers Co. in 1916. For several years he was secretary of the corrosion committee of the American Society for Testing Materials.

JAMES ASTON

Present Research Facts at Institute Meeting

STARTING in industry at the age of 12 at Consett, England, and emigrating to the United States at the age of 23, James P. Roe has become known as one of America's leading metallurgists. He was born in 1860 and received his apprentice training at Consett, becoming assistant mechanical engineer before leaving. He entered the Pottstown Iron Co. on arriving in America, and was advanced steadily until he became general superintendent. In 1890 he became general superintendent of the Glasgow Iron Co.'s interests. Mr. Roe became general superintendent of the Reading Iron Co., Reading, Pa., in 1920, which position he now holds. He is a member of the American Iron and Steel institute, Iron and Steel institute and American Society for Testing Materials.



JAMES P. ROE

MARVIN W. DITTO, general manager of Socony Burner Corp., New York, subsidiary of the Standard Oil Co. of New York, was born Oct. 3, 1886 in Montana. He was educated in the public schools of that state and in the University of Michigan. He started his career in the copper mines and smelters of Butte, Mont., afterward serving in Idaho, Nevada, Arizona, British Columbia, Alaska and Mexico. He had charge of technical work in developing Illinois coal for metallurgical purposes, and built the coke oven and blast furnace plant at Granite City, Ill., now part of the National Enameling & Stamping Co. Recently he has devoted much time to distillation of coal and production of its by-products. His paper presented before this meeting of the American Iron and Steel institute was on "Low Temperature Distillation of Coal."

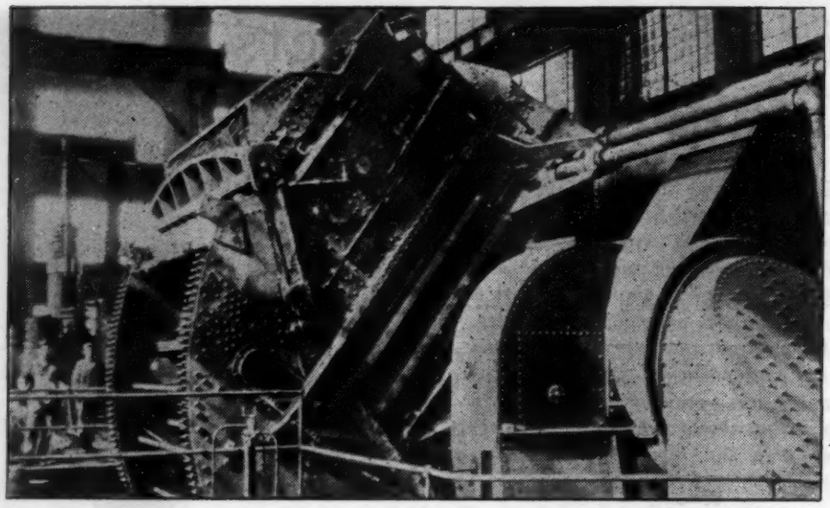
M. W. DITTO

MAGNETIC materials and ferrous metallurgy has been the specialty for ten years of W. E. Ruder, research laboratory, General Electric Co., Schenectady, N. Y. Mr. Ruder was born in Stockdale, Pa., Dec. 22, 1886, and was graduated from State Normal, California, Pa., in 1903 and in electrical engineering at Pennsylvania State college in 1907. Mr. Ruder has numerous patents on improvements of magnetic materials and has presented many papers on metallurgical subjects including "Metallurgy of Arc Welding," "Grain Growth in Steels," "Metal Radiography," "Calorizing," "Fatigue of Metals," "Mechanism of Fracture," etc.

DONALD G. CLARK

DONALD G. CLARK, district manager at New York for the Firth-Sterling Steel Co., was born in South Bend, Ind., 1884, and after graduation from technical preparatory school in 1903 was employed by the western agent of the Firth-Sterling company. He later became partner in E. S. Jackman & Co., Chicago agent for Firth-Sterling and in 1910 was made Pittsburgh manager by the latter company. He was appointed eastern manager in charge of sales in New York and New England in 1919. Mr. Clark helped start the Chicago organization which merged with the Detroit society to become the American Society for Steel Treating. His only technical work recently has been in connection with stainless steel. He was in charge of the Firth-Sterling company's experimental heat treatment plant and helped develop the salt bath for treating high speed steel.

DR. W. E. RUDER



Mechanical Puddling in This Equipment Closely Parallels Hand Process

View of Double Furnace Used at Plant of the Reading Iron Co.

Simplicity Marks Roe Process

Analogy Between Hand and Mechanical Processes of Puddling Are Emphasized —Double Furnace Employed at Reading Plant and Method of Charging, Firing and Operating Are Described

By James P. Roe

THE feature the writer desires to emphasize is the analogy between the process as carried out in the hand-puddling furnace and that of the mechanical furnace as developed at Reading. This was the guiding thought in the effort to produce iron mechanically, that is, the analogy, without trying to explain all that takes place in a hand furnace.

The ordinary double puddling furnace used in Reading as outlined in section is of simple construction, a fire chamber, the working hearth, and the flue. The bottom of the hearth is composed of pure oxide of iron resting upon a cast iron, air-cooled bottom. The sides of the hearth are formed of iron ore, technically known as "fix." The weight of charge for this type of furnace is 1200 pounds, and five heats constitute a full turn's work when running two turns per 24 hours.

The process itself is in keeping in simplicity with the furnace. After the pig iron is charged, the puddler endeavors to fuse the whole charge as nearly at one time and at as low a temperature as possible. This is accomplished by moving the pigs about with a paddle, thereby exposing fresh surfaces to the flame and the dissolving influences of the cinder bath. The fusion of the pig iron and part of the puddle cinder remaining after the working of the previous heat takes place simultaneously at a temperature of about 2150 degrees Fahr.

The cinder produced during the melting oxidizes and absorbs a large portion of the silicon and manganese. As the temperature increases, rapid decarbonization takes place, giving off a large volume of carbon monoxide gas, which causes the bath to swell and to produce what is known as the "high boil." Vigorous agitation of the bath is vitally important throughout the process, to produce uniform conditions in all parts and prevent any portion continuing to rest upon the relatively cool bottom.

Skilful Firing Necessary

During the high boil, individual grains of iron can be seen moving about freely in the surrounding cinder. When the elimination of the carbon is nearly completed, the boiling subsides and the apparent volume of cinder is reduced; this is known as the "drop." The grains of iron, each enveloped in cinder, form clusters, from which the excess cinder drains off and rests tranquilly on the bottom. The iron at the bottom of the furnace is naturally cooler than that above. This necessitates turning over the spongy mass, and, while this is being done, it is parted into individual balls and then "drawn" and taken to the squeezer.

Skilful firing is of the first importance, as on it rests the proper carrying out of the process. Emphasis should also be given to the importance of suitable cinder. Proper cinder is vital throughout all the stages.

The real problem was agitation, or to accomplish with mechanical means what the puddler does with the rabble. The Roe puddling machine now in operation at Reading was designed to fulfill these conditions, which it has done successfully.

The furnace proper is rectangular in shape, 12 feet wide and 24 feet long. It is supported by two hollow trunnions, one on each side, each resting in roller bearings set on top of columns, the furnace oscillating between these columns through an angle of 120 degrees. This rocking is accomplished by means of suitable gearing and motors and is so arranged that the movement can be rapid or slow, to suit the different requirements. Through the hollow trunnions the gas and air are admitted on both sides, meet in the middle, pass to both ends, and find their exit through two stacks at each end, which converge above the furnace, extend out transversely, then down to the axis, and from there underground through a recuperator to the stack.

The door forms the whole of one end of the machine. It is suspended

From a paper presented at the meeting of the American Iron and Steel institute, New York, Oct. 23, 1925. The author is general superintendent, Reading Iron Co., Reading, Pa.

by hinges at the top and connected at the bottom by side rods to a hydraulic cylinder under the bottom, and is securely locked by means of hydraulically-operated wedges passing through the sides of machine and side rods.

The substructure of the bottom is composed of a series of rectangular pipes through which water passes. Upon these pipes magnesite bricks are laid on edge, and on these fluid cinder is charged. This cinder is of the same character as that used in the hand furnace. The sides and end of the furnace are composed of magnesite brick, while the roof is ordinary fire brick. In this connection it may be stated that one-half the area of the bottom, namely, 144 square feet, has the same ratio to the weight of the iron puddled as that of a hand puddling furnace, and the form, in longitudinal section, is flat in the middle, which is tangent to the end portions, resulting in the extreme ends of the bottom being notably higher than the middle portion.

The process is as follows: It has already been stated that the working bottom is formed of pure oxide of iron. This is derived from a small tilting open-hearth furnace in which it is melted, then poured into a cast iron ladle and charged into the puddling machine through a hole in the side near the rear and flowed uniformly over the bottom, where it rapidly congeals, as its temperature of fusion is high.

Following this the puddling cinder, melted in the same type of furnace, is charged in the same manner and flowed over the bottom and over the door joint, where it congeals and forms a liquid-tight joint, due to the bottom of the door and the sill being watercooled. Immediately after this, molten iron from a mixer is charged. After one rapid motion the oxidizing agent, roll scale, is charged by means of a long spoon, which, when inserted, extends across the whole width of the furnace and distributes the scale uniformly throughout the same. The addition of the scale is continued until in the judgment of the puddler sufficient has been charged.

How Oxidation Takes Place

Between spoonfuls the machine oscillates rapidly about 45 degrees each side of the horizontal. During this period air and gas are shut off, producing an oxidizing atmosphere in the furnace, and during which time the whole of the silicon and manganese are oxidized. Gas and air are then admitted, and, as the temperature increases, the reactions become apparent and increase in intensity until the high boil is attained, which is the period of the most rapid decarburization, during the whole of which the machine is moved rapidly, producing violent agitation of the whole bath and turning it over at each end like combers or waves of the sea, with intermissions between each successive five or seven oscillations.

As evidence of the drop appears, that is, when most of the carbon has been eliminated, the motion is changed to an extremely slow one, and at a somewhat less angle, the object now being to prevent the plastic and partially refined mass from going together, as, should it do so, the center of such mass would not be completely refined. This is a most vital feature, to keep the iron sponge open at this period, and one which the particular form of bottom is specifically intended to attain. It is evident that the iron sponge conforming to the curved bottom toward the end will open up the top portion as it passes over the flat portion in the center; similarly, when it passes from the flat portion in the center to the curved portion at the end, it opens up the lower portion.

The whole period of making a heat averages 60 minutes. Again, the analogy, as this time corresponds with the same reactions and actions as in the hand furnace, while the weight of heat is five to six times as great, or about three gross tons. Of recent years, when operating, they have averaged 1000 tons per furnace per month, an equivalent to the product of ten ordinary double puddling furnaces; that is, the production of a skilled puddler is increased 20-fold.

The analogy between hand puddling and mechanical puddling should cease with the squeezed bloom. It is both commercially and metallurgically wrong to go through the muck bar stage. It is better to squeeze the bloom to sizes suitable for rolling on a blooming mill, roll to any section desired, and cut to weight required in the finishing mills, these blooms to take the place of piles made up of muck bars. From a metallurgical standpoint this is also a better procedure, as it largely eliminates laminations, an inherent defect of wrought iron piled from small units. It may be stated that fundamentally the sole reason for piling muck bar in the present mode of making iron is that no mass could be produced by human effort large enough to give the necessary work or reductions of section to the finished product of appreciable size. We have worked enough iron to be sure of its entire feasibility.

Uses of Stainless Steel Grow Rapidly

By Donald G. Clark

WHEN we read that the world's production of iron and steel in the year 1924 approximated 60,000,000 tons, we picture mentally the new buildings, ships, railroad equipment, automobiles, machinery and other necessities which this enormous tonnage makes possible, and we feel a justifiable pride in the part our industry is taking in the progress and welfare of mankind. But when we realize that probably one-fifth, or about ten to twelve million tons, of this product was used to replace the loss caused by corrosion, principally rust, we must admit that in addition to strength in steel we need what may be called permanence, or inherent resistance to rust and other forms of corrosion.

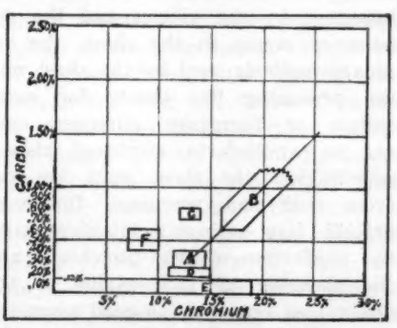


FIG. 1—LOCATION IN THE CHROME-CARBON FIELD OF STAINLESS STEEL

The selection of the word "stainless" to describe this type of steel may be considered fortunate, because almost all forms of corrosion begin with discolorization or staining. "Stainless" is, therefore, an excellent name for a nonrusting, corrosion resisting and heat resisting steel. Commercially the name "Stainless" has come to mean that group of steels which have a high chromium content, generally from 8 per cent to 25 per cent chromium, and this paper will be limited to those steels wherein

From a paper presented at the meeting of the American Iron and Steel institute, New York, Oct. 23, 1925. The author is eastern manager, Firth-Sterling Steel Co., New York.

chromium is the predominant alloy.

The original composition selected as typical, namely, 13 per cent chrome and 0.30 per cent carbon, is still the standard type for cutlery, dies, machine parts and other purposes where the maximum resistivity, hardness and resiliency are required. Various modifications have been made to improve certain properties or overcome certain limitations of this standard type. While the technical societies which are endeavoring to standardize steels and nomenclature have decided that the time has not yet arrived to classify corrosion resisting alloys, I believe for the purpose of this paper those which are included under the name stainless steel may be divided in a broad way into the following types:

(a) Standard cutlery type.
(b) Hard cutlery type.
(c) High carbon type.
(d) Soft steel type.
(e) Stainless iron type.
(f) Valve type.
(g) Nickel type.
(h) Copper type.

These fall in the chrome-carbon field as indicated in Fig. 1.

Standard Cutlery Type

The usual composition of this type is chromium 11.5 to 14.5 per cent, carbon 0.25 per cent to 0.40 per cent with all other elements the same as are found in high grade steels like carbon tool steels. In some instances the forging or rolling heat is sufficient to set up a stainless condition in the steel, but this is not dependable and is removed by the annealing. It is therefore necessary to heat treat all of this type of stainless steel, producing a homogeneous material, to secure a stainless condition. After heat treatment the surface of the article must be removed by grinding, pickling or other process which will leave it entirely free from scale. A minute particle of scale left in the surface will form a point where corrosion can start and spread gradually over the piece.

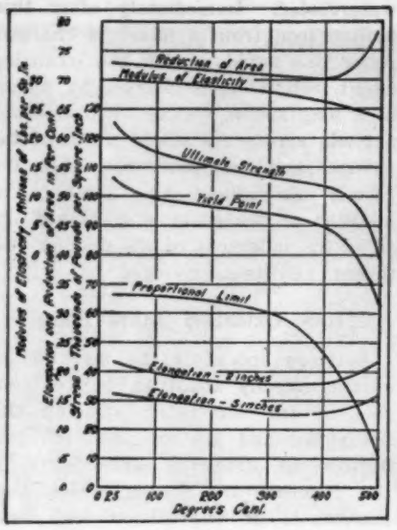


FIG. 2—TENSILE TEST DATA

In an effort to secure a greater degree of hardness and to find a cutlery steel outside the Brearley patent range, a type of cutlery steel known as Type B was developed. It includes the chrome-carbon compositions between 16 and 20 per cent chromium and 0.60 per cent and 1.10 per cent carbon. Some of the steels carry both chromium and carbon to much higher percentages but a balance of 20:1 in the low carbons, and 15:1 in the higher carbons must be maintained. In the opinion of a few manufacturers this type of cutlery steel has the advantage of taking a high polish, giving a somewhat harder cutting edge and showing a greater resistance to wear than the standard type. This type has, however, the offsetting disadvantages of being considerably harder to work in forging, machining and grinding and is somewhat more difficult to heat treat than the regular quality. The physical properties of this type are inferior to those of the standard type, so that at the present time it is not known to have any particular value outside of the limited cutlery field mentioned.

High Carbon Type

To meet the requirements of another limited field such as dental tools, surgical instruments, bearings and other purposes where a certain amount of stainlessness may advantageously be sacrificed for greater

(*Concluded on Page* 1120)

Use of Electrical Sheets Is Expanding

By W. E. Ruder

SILICON, one of the most common and widely distributed elements found in nature, always has been associated with the analysis of steels. Its effect upon the properties of steel in the fractional percentages in which it is usually found therein, is so familiar to every steel man that it is hardly necessary to consider it at this time. It is only when this element is added or retained in some definite proportion that the product may be truly called an alloy steel in the accepted sense of the term, and it is to be so considered in the present discussion.

While the greater usefulness of silicon steel has been in the construction of transformers, the last decade has witnessed a rapid growth in its use for motors and generators, so that the production of "electrical sheets," as they are now generally termed, has taken an important place in the steel business of the country.

Mechanical Conditions of Sheets

It is of great importance to the user to get sheets which are perfectly flat. Owing to the hardness imparted by the silicon and the deleterious strain in the sheet, the ordinary methods used by the sheet mill for producing flat sheets for automobile or furniture purposes cannot be applied to electrical sheets, nevertheless the sheet must be free from curl and waviness, for such defects may seriously interfere with the production of true punchings and the shearing of long strips to the dimensions required for good assembly.

The Epstein method, as adopted by the American Society for Testing Materials A-34, is now almost universally used as a standard for core loss. This is in reality a standardized transformer with a removable core weighing one kilogram (2.2 pound) built of sheets sheared into strips 50 centimeters (19 11/16 inches) by 3 centimeters (1 3/16 inches).

The rapid increase in the growth of the electrical industry and the prospects for its future development together with the increasing necessity for conservation of energy all presage a large increase in the use of silicon sheets, for so far, although diligent search has been made, no substitute has been found. That the steel industry is aware of this is evidenced by the increase in the number of producers. Just as electricity has become indispensable to our present-day civilization, so silicon steel has become indispensable to the electrical industry.

From a paper presented at the meeting of the American Iron and Steel institute, New York, Oct. 23, 1925. The author is research metallurgist, General Electric Co., Schenectady, N. Y.

Making Seamless Tubes By New Methods

(*Concluded from Page* 1083)

somewhat smaller. From *B* to *D*, these diameters decrease until at *D* the groove or throat of the roll is semicircular and has a diameter of exactly 6 inches. From *D* to *C*, the throat size remains constant but from *C* to *A* it again becomes gradually enlarged until at *A* the opening is again semi-elliptical but smaller than the throat at point *B*. The balance of the roll circumference, *AB*, is completely relieved to provide clearance.

Now suppose we push the hollow bloom into the rolls which are rotating against the movement of the mandrel as shown. The rolls make their first contact with the bloom at the point *B* where the throats between the rolls form an ellipse about 10 inches wide and somewhat less than 10 inches high. As the rolls continue to revolve, this ellipse becomes smaller until it becomes a circle of 6 inches diameter when the points *D* of the two rolls coincide. Thus it is evident that an increasing pressing or squeezing effort has been exerted on the bloom to reduce it to the required size, an action which is extremely beneficial to the fiber of the steel. As the rolls rotate from *D* to *C* the throat opening remains constant and forming of the tube is accomplished. During this period, the bloom has been forced back against the auxiliary air cylinder. As the rolls rotate still further from *C* to *A*, the diameter of the opening between the rolls increases and the pressure on the tube is released. Consequently, while the rolls rotate from *C* to *A* and *A* to *B* the air cylinder returns the bloom to a position between the rolls and at the same time rotates it 90 degrees. Due to the fact that the rolls rotate rapidly and only a portion of the roll circumference is used in forming a tube, the effect on the steel is similar to that obtained under a forge hammer.

The air cylinder absorbs the heavy recoil shocks which occur due to the high rotative speed and hammering action of the pilger rolls and its successful functioning is of vital importance to the working of the mill. The pilger mills are made completely of steel and are designed with automatic adjustments and labor saving devices. The mandrels are carried automatically to a cooling table which lowers them hydraulically into the cooling trough.

After passing through the pilger mills, the tubes are delivered into a steel runout trough on the far side of the mill, each trough being provided with two hot saws, one for cutting off the front end of the tube and the other for cutting off the pilgered head at the back end of the tube. After being cut as described, the tubes are handled according to the class of finished product that may be desired. If tubes are required for reducing to diameters smaller than 6 inches, they are delivered down a skid-over gear to the central live roller trough from which they are automatically thrown off and carried by means of conveyors through a reheating furnace and back into the live roller trough leading to the reducing mill. After passing through this mill, the tubes go directly through a small cross roll straightener from which they pass out on to the cooling bed.

Tubes which have a diameter of 6 inches and larger are passed from the pilgering mill runout trough down the skids into the central runout trough as before, but are diverted into a wash heat furnace through which they are carried automatically and finally delivered to a runout trough leading to the plug reeler. The tubes are passed through the reeling machine over a plug and delivered on the far side of the machine lying on the plug mandrel. An electrically-driven mandrel withdrawing gear draws back the plug mandrel and the tube is skidded down to the live roller trough leading to the sizing mill. This mill brings the tube to the exact outside diameter before passing it through to a cross roll straightening machine and the cooling bed.

For the purpose of indicating the outputs which may be expected from modern piercing and pilgering plants, the following figures representing the outputs of one pilger housing in one hour, have been compiled:

Outside diameter of tube, inches	Length of tube produced, feet	Finished weight produced, tons
5	680	2.5
6	605	3
7	502	3.75
8	452	3.75
10	405	5
12	375	6.25
15	325	8
20	280	10

Finished lengths of tube up to 75 feet for special requirements can be produced on the pilger mill, but good average working lengths range from 45 to 55 feet. As these tubes may be cut up into shorter standard length with a minimum scrap loss, this process of manufacture affords considerable economy.

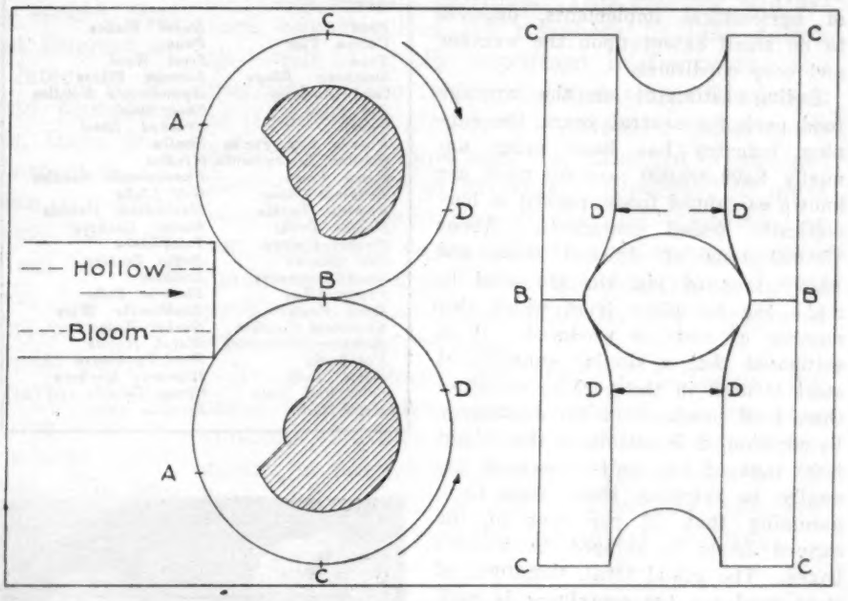


Fig. 9—This sketch illustrates the unusual design of rolls employed in the pilger process of seamless tube manufacture

A development which the future probably will bring out is the use of centrifugally cast steel hollow bloom to replace the pierced steel blooms as the raw material in the pilger process. This, of course, would eliminate the need for a piercing mill and would make possible the passing of the heated hollow blooms directly to the pilgering mill. One advantage of this would be that the hollow cylinders would be easier to heat than solid blooms and would pass through the pilgering rolls at a relatively higher temperature than the blooms which first must undergo the piercing operation.

Large Uses of Steel In Small Ways

SINCE everyone who eats has more than a passing interest in the preservation of foods, the canning industry always may be expected to be a fairly heavy consumer of steel. A variation in the output of tin containers must be expected each year, as the production in this industry, somewhat like the marketing of agricultural implements, depends to no small extent upon the weather and crop conditions.

Basing estimates on the average food pack for several years, the canning industry has been using annually 4,500,000,000 cans for what are known as canned foods, packed in hermetically sealed containers. About 750,000 tons of finished steel and 13,000 tons of pig tin are used to make the tin plate from which this number of cans is produced. It is estimated that a similar quantity of steel is used in the packing of other than food products in tin containers. In addition, it is estimated that about 5000 tons of box nails are used annually in shipping these food cans, assuming that 50 per cent of the canned foods is shipped in wooden boxes. The grand total, therefore, of steel used for tin containers is estimated to reach 1,510,000 tons annually. Tin containers used in the marketing of paints and varnishes also use a considerable part of this steel allotment.

Black plates for tinning are rolled from rectangular shaped tin bars about 8 inches wide and of such thickness and length as will conform to the dimensions of the tin plate desired.

The tin bars may be of bessemer or open-hearth steel; the bulk of the tin plate made in this country at present is manufactured from the latter grade. The finished product is packed in wooden boxes of 112 sheets to the box, sometimes lined with paper and sometimes tinned lined and strapped on the exterior to prevent breakage in handling. The tin plate is cut to various sizes depending on the dimension of the can to be made.

The first operation is cutting out the bodies for the cans, Few industries have developed more remarkable machinery for an almost automatic output of their products than the canning industry. Everywhere throughout the process of making cans, ingenious machinery is used. The bodies for the cans are cut to size by a slitting machine. These are fed automatically into a body-forming machine that shapes the plate around a circular iron core whose diameter is that of the inside of the can. During this same operation, and while the piece of tin plate is around the iron beam, the side seam is formed and soldered, the soldering being done on the outside so that it does not come in contact with food which later is put in the can.

The next operation is flanging or turning out a rim on the ends of the can to which the top and bottom are fastened. From the flanging machine the cans are fed automatically to a machine which fastens the bottom by means of crimping or turning the edges of the bottom and end of the can together so as to form an air-tight closure. From here the can passes to a testing machine which automatically creates a vacuum in the can by suction. Those cans that are not air-tight will not adhere to the rubber pad, but drop off and the leaks are mended. An air pressure testing machine also is used for the same purpose in some plants. The ends of the cans are made by a machine which stamps them out at a high rate of speed.

It is practically impossible to roll the seams together tightly enough to seal them hermetically without a gasket of some sort between the two edges.

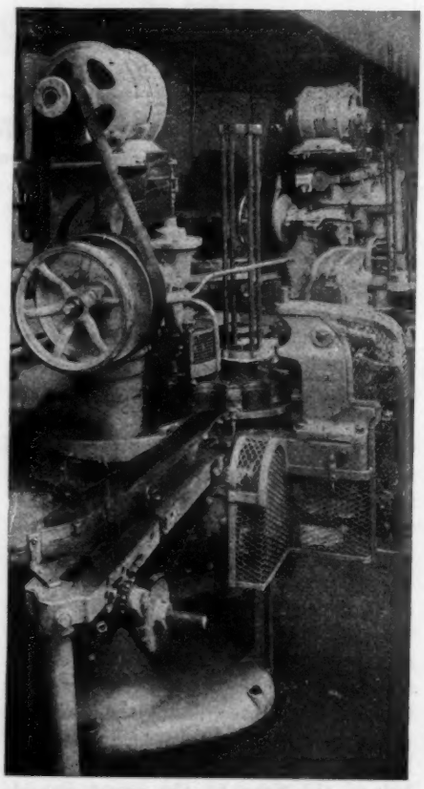
The tin can manufacturer employs two types of gaskets for this purpose. One is a paper gasket which is a continuous ring from a circular disk; the other is a rubber gasket made of rubber composition. This is placed automatically on the outer edge of the end and then passed through an oven to evaporate the solvent. By the aid of these gaskets, the bottom and top of the cans are crimped air-tight without the use of solder, the only solder used being that on the side seam, which is on the outside of the can.

Tin Cans

THIS is the fiftieth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

The first article on "corsets" appeared Nov. 22, 1923. Other articles appearing fortnightly since are:

Pins	*Razor Blades*
Cotton Ties	*Pens*
Toys	*Steel Wool*
Spinning Rings	*License Plates*
Card Clothing	*Hypodermic Needles*
Tie Plate	*Shoe Steel*
Tacks	*Crushed Steel*
Knives and Forks	*Skates*
Surgical Instruments	*Needles*
Fence Posts	*Phonograph Needles*
Eyeglass Cases	*Golf Clubs*
Fishing Tackle	*Mechanical Pencils*
Dental Drills	*Burial Caskets*
Pocket Knives	*Telephones*
Rat Guards	*Radio Towers*
Snap Fasteners	*Brushes*
Paper Clips	*Electric Bells*
Steel Vests	*Bookbinder Wire*
Electrical Conduit	*Sucker Rods*
Radiator Furniture	*Watch Hands*
Notebooks	*Steel Furniture*
Metal Beds	*Highway Markers*
Bolts and Nuts	*Camp Cots*
Metal Lath	*Flexible Shaft*



ENDS ARE CRIMPED ON CANS BY AUTOMATIC MACHINES

Editorials

A Need of Business Flavor

WHEN 1500 or more men, most of them executives or those of ranking importance in sales and production work, take the time away from their duties to gather for a day in New York as they did for the meeting of the American Iron and Steel institute, there must be some strong magnet. Wherein lies that attraction, it is not difficult to demonstrate. When Judge Gary gives his keynote address, he delivers it before numbers that pack the hall. Regardless of how masterful or unusual his speech, that part which is awaited with greatest interest or finds widest individual discussion later, is his treatment of business conditions and prospects. Having heard Judge Gary's address, there is a decided and noisy movement of the crowd to adjoining anterooms where man-to-man conversations of a business nature hold sway. The program of technical papers is carried out before a small fraction of the original audience.

The point is clear that the impulse to attendance at the institute meetings is almost entirely business. Men coming from all parts of the country know they will be able to see more of their competitors, customers or business associates here than on any single occasion. The opportunity to renew business contacts in a personal way, is exceptional. It would be difficult to find a situation exactly comparable in this country.

The strength of the institute meetings has been and always will be the part they play in business life. Perhaps this was properly visualized when the organization was founded. For a gathering so overwhelmingly business in nature, the question is raised whether a set program of papers so uniformly technical in character is not overshooting the mark. It is certain the introduction of commercial or business topics of pertinent character to the iron and steel industry would go far in dispelling the present general view that institute meetings are dry and uninteresting.

An Opportunity for Fabricators

WHEN the first American settlers came to the shores of America, their first task was to clear a little spot of land and build a home. Often the process of erecting a cabin was halted temporarily while the pioneers traded axes for muskets and repelled invading Indians.

The American Institute of Steel Construction, truly a pioneer in this twentieth century, started to erect its structure for service to the fabricating industry in 1922. The work of building has been exceedingly rapid but it is far from complete. It was halted in midsummer this year to repel the attack of an unfair report which had been prepared by a committee acting under governmental jurisdiction. The institute emerged victorious and is ready now to put the finishing touches on its structure.

Part of this work can be done at the annual convention of the institute to be held Nov. 11-14 at White Sulphur Springs. This meeting will afford opportunities for members to take action that will be vitally important in furthering the interests of the fabricating industry. The work of the institute already is on a sound basis, much good has been done and the influence of the organization daily is growing. However, it must round out its activities if the full opportunities for results are to be gained. Decisions must be made on the extension of technical research, on problems of marketing, publicity for structural steel and on advertising.

Every individual interested in bettering the cause of structural steel should attend the convention. He owes it to himself and to his industry to participate in this meeting and by so doing help complete the wonderfully effective structure for service the institute is erecting.

Confidence Affects Tax Receipts

IF FURTHER support is needed for the argument that the lowered surtax rate on the higher net incomes, accorded in the 1924 tax law, had acted as a stimulant to general business and industrial expansion, it can be found in the figures covering collections for the first quarter of the present fiscal year. These figures, made public by the internal revenue bureau, showed an increase in receipts from every general source of taxation over receipts for the corresponding months of July, August and September, 1924.

It was pointed out that this would not have been the case if it had not been for the encouragement business and industry has had to go ahead through assurance that the government was going to take a smaller and smaller percentage of the net profits.

Secretary Mellon has come out of his preliminary skirmish with the ways and means committee with flying colors. Nearly $300,000,000 will be available for absorption by tax reduction provisions in the new revenue law. This is too large a

sum to be made a political pawn in vote-catching schemes, such as a tax exemption on incomes up to $5000, as was suggested by some of the members of the ways and means committee. What Mr. Mellon advocates is not tax reduction for the next political campaign, but tax reform to meet economic conditions as they exist. Charges that the treasury suggestions for the new revenue law contains a joker for further reductions just preceding the next national election, such as made by Senator Swanson and Representative Garner, will act as a boomerang. In making his case before the committee, the secretary showed the characteristics of a business mind more penetrating than the country is accustomed to in the direction of its fiscal affairs.

Shows Universality of Steel

WHERE the steel goes always has been a matter of interest. That railroads and the building trades absorb great tonnages in rails and structural forms is obvious, yet many more outlets not so apparent continuously take toll of the output of steel mills and add their totals in sufficient aggregate to be of importance.

About two years ago, Nov. 22, 1923, to be exact, IRON TRADE REVIEW published the first of its series on "Large Uses of Steel in Small Ways" and fortnightly since then a similar article has appeared. In this issue the fiftieth of the series will be found on page 1092.

The range of uses thus described has been wide, from needles to radio towers and from corsets to burial caskets. In each case the method of utilization has been described and an approximation of the tonnage involved given. As the series has been developed, the field has widened and uses not at first in mind have been suggested. It appears the subject still is far from being exhausted.

The lesson is that steel is the universal metal, and that each individual carries about with him every day more steel than he realizes and at every turn in our present civilization steel is a necessary component in the things that make up the world as we know it.

Universities Sponsor Exhibits

IT WAS with some reluctance five years ago that Yale university and machine tool manufacturers of Connecticut decided to co-operate in a machine tool exhibit held in Mason laboratory of Sheffield scientific school. The exhibit, however, met with immediate success and has grown rapidly ever since until now it is a permanent institution of the university, and according to one of the professors, in addition to its value as an educational feature for undergraduates, it ranks high as a factor in the publicity of the institution.

Another exhibit held at a scientific school has just come to a close at Boston. The co-operation of the Massachusetts Institute of Technology made it possible for the American Welding society to hold a highly successful exhibit of welding tools and apparatus. The actual operation of nearly all types of welding machinery afforded an unprecedented educational opportunity in this field for the technology students, and the wish to have the exhibit continue as a permanent part of the institute was frequently expressed. Perhaps the Massachusetts Institute of Technology or other institutions with the experience of Yale university as an example, will take steps to sponsor an annual exhibit of welding apparatus. This would give the welding industry the advantage of unbiased research work and would give the institute a unique position in the growing field of welding.

What Our Readers Are Thinking

Distribution Costs Must Be Cut

I LONG for 25 years more of life to watch the industrial development of this country. I predict today that this country soon will be producing 100,000,000 tons of steel a year. Manufacturers cannot expect to continue to be prosperous in this or any other country unless they study economy and the possibilities of cutting costs to a degree never before considered necessary. These costs must be cut not merely in manufacturing, but in the expense of selling goods.

Take the automobile business, for example: There is tremendous extravagance growing out of the competition to sell cars. The public today is paying an enormous percentage of the cost of automobiles which is not represented by the value of the car itself. That is true in a great many lines of industry.

We are going to be subjected to severe competition from other countries. As a result of the war, it is likely that the standards of living will be reduced rather than improved in Europe, and a natural result will be a reduction in wages in Europe. If, then, Americans are to be able to maintain their standards of living, it will be necessary to do our business in those countries upon a basis of economy which will make possible competition with the product of any country in the world.

The other problem is the importance of developing men. Altogether too many men have had to do routine jobs, unrelieved by variety or change of scene. We have got to work out a plan whereby men, even in the subordinate ranks of life, may obtain the sense of achievement out of performing routine tasks.

CHARLES M. SCHWAB

In address at conference on education and industry, at University of Chicago, Oct. 21.

The Reader's Page

Vol. LXXVII, No. 18 IRON TRADE REVIEW Oct. 29, 1925

New Tube-making Process Has Wide Significance

MANUFACTURE of seamless steel tubing by a recently perfected process is described in this issue of IRON TRADE REVIEW, page 1079. While the Wellman-Peters process has been known in Germany for two years or more, only in the last four months has it been given important commercial application, by an installation at Sheffield, England. The Mannesman process for hot piercing round steel bars originated in 1885, and the bulk of seamless steel tubing today is made that way. The Wellman-Peters method is to use square billets, a factor of economic importance; and further, the steel is improved during the working. The article also contains a description of the pilger process for the making of steel tubing of larger diameter than produced by the Wellman-Peters. This is one of the first comprehensive articles published in America to discuss the pilger process.

Making Seamless Steel Tubes
Page 1079.

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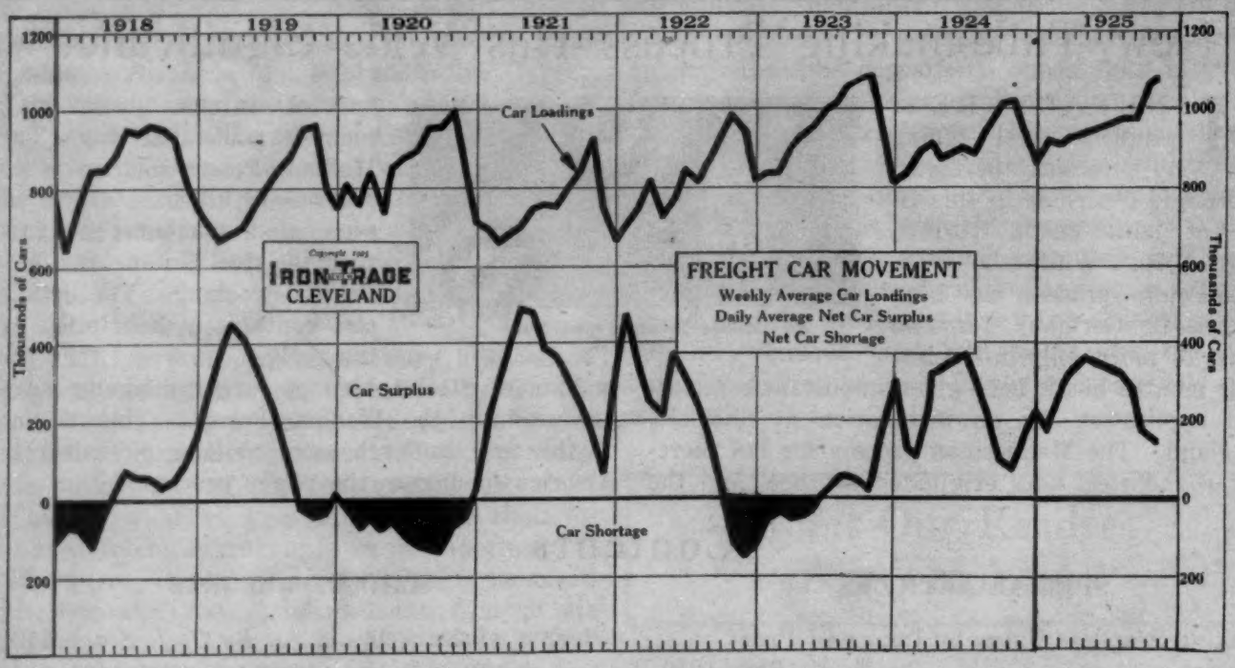
The Business Trend



Basic Factors Support Gary Views

By JOHN W. HILL, Financial Editor

CHAIRMAN E. H. GARY of the United States Steel Corp. occupies a unique place in the business world. In this eminent position as head of the greatest of all modern industrial giants his views on business subjects are flashed to the uttermost corners of the country. What he says is carefully attended, and deservedly so, because his words always are carefully weighed before being spoken.

FOR that reason when Judge Gary says business is at the threshold of great prosperity, his assertion represents a deep conviction based upon an unobstructed view of conditions. Naturally such statement from this source has had a profound effect business and financial sentiment. But what Judge Gary says and sees is not hidden from the general vision.

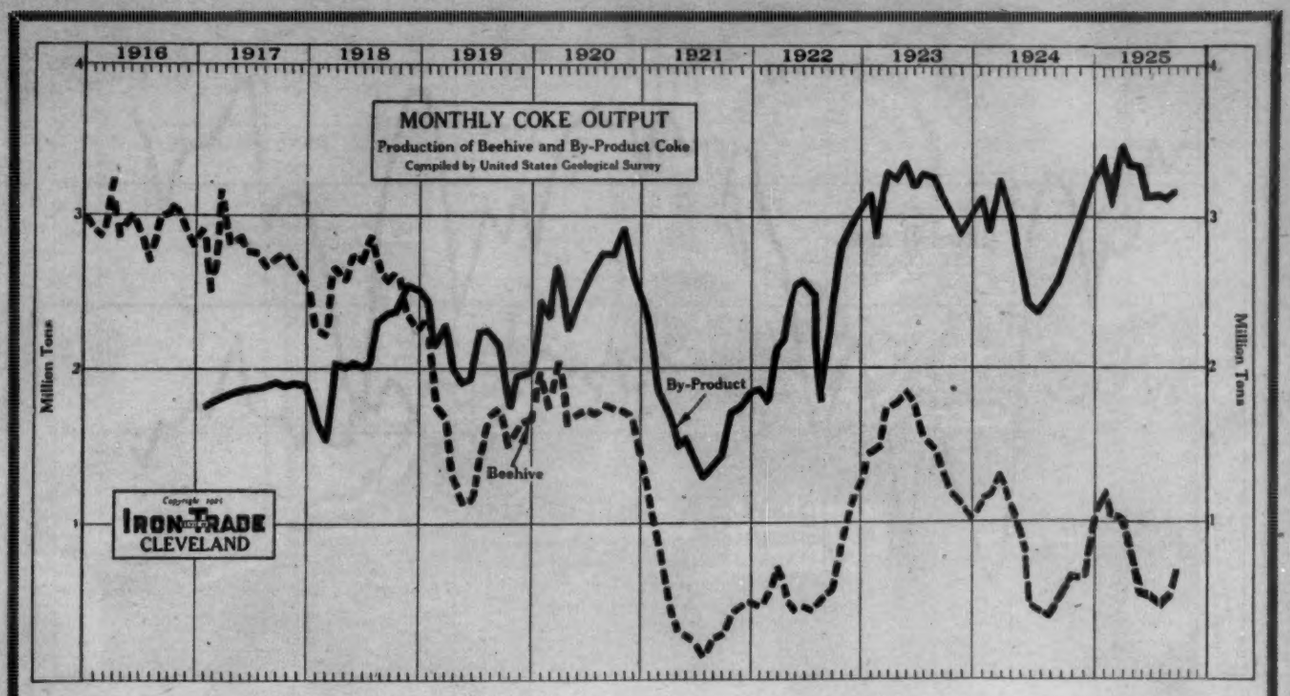
FUNDAMENTAL factors in control of the immediate situation are mainly constructive. Agricultural and industrial purchasing power is on a relatively high plane, export demand is good, money is in ample supply, industry has avoided over producing and stocks of goods are moderate, prices are stable, and further lightening of the federal tax burden is in prospect. These are all elements which go to make good times for industry and trade.

THE iron and steel industry itself is beginning to share in increasing activities. When Judge Gary said mills would be turning away business before next spring he was not speaking loosely. The building boom, is being overdone in spots, but it is going strong. Motor car output is high, and now the long delayed buying by railroads is beginning.

THE diagram at the top of this page helps to explain the increased purchases by the roads. Freight traffic has broken all records in recent months. The number of idle cars is steadily dwindling as shippers increase their requisition. Early last summer the number of cars out of use was more than 350,000 and now it has sunk to 130,000. With earnings at peak levels the roads are justified in keeping facilities in shape.

AN INTERESTING recent development has been the renewed fresh inflow of gold from Europe. The reduction of the discount rate of the Bank of England had the effect of letting down the bars to the outflow of gold from London. The movement to New York has amounted to about $48,000,000 and it has helped to increase credit supplies, to check the rise in interest rates and to give new impetus to the gigantic bull movement of the stock market.

The Business Trend

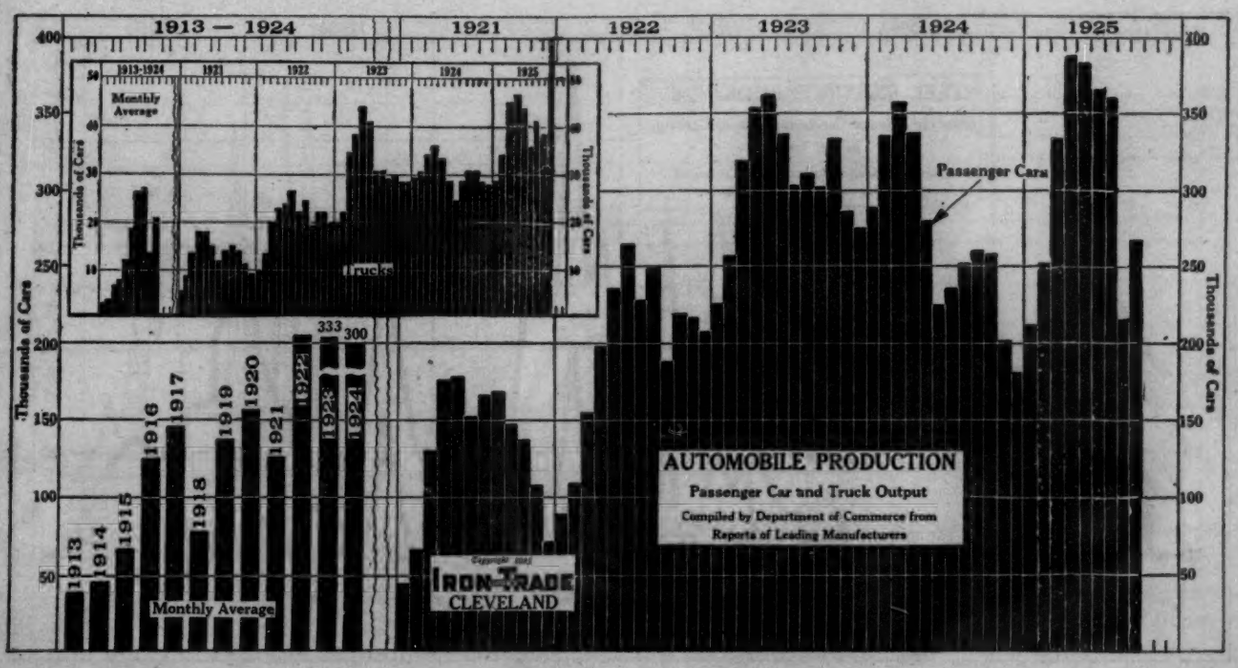


Coke Production

THE trend of coke production is upward. During September, bee-hive coke output was 746,000 net tons, a gain of 23.9 per cent compared with August. This was the largest production of any month since April. Output has been speeded by the demand for furnace coke for domestic uses, due to the hard coal strike. Blast furnace operations also have increased. The total production of by-product coke for the month was 3,181,000 tons compared with a total of 3,162,000 tons in August.

Automobile Production

THE production of automobiles in September showed a sharp gain over August. The total for the month in the United States was 319,919 passenger cars and trucks. This compared with 250,660 in August and with 287,549 in September, 1924. Truck production in this country was 57,883, the highest for any month in history. This is explained by large gains in output at the Ford plants, although other truck makers' output held at high levels. Passenger car output in many plants is now being checked.



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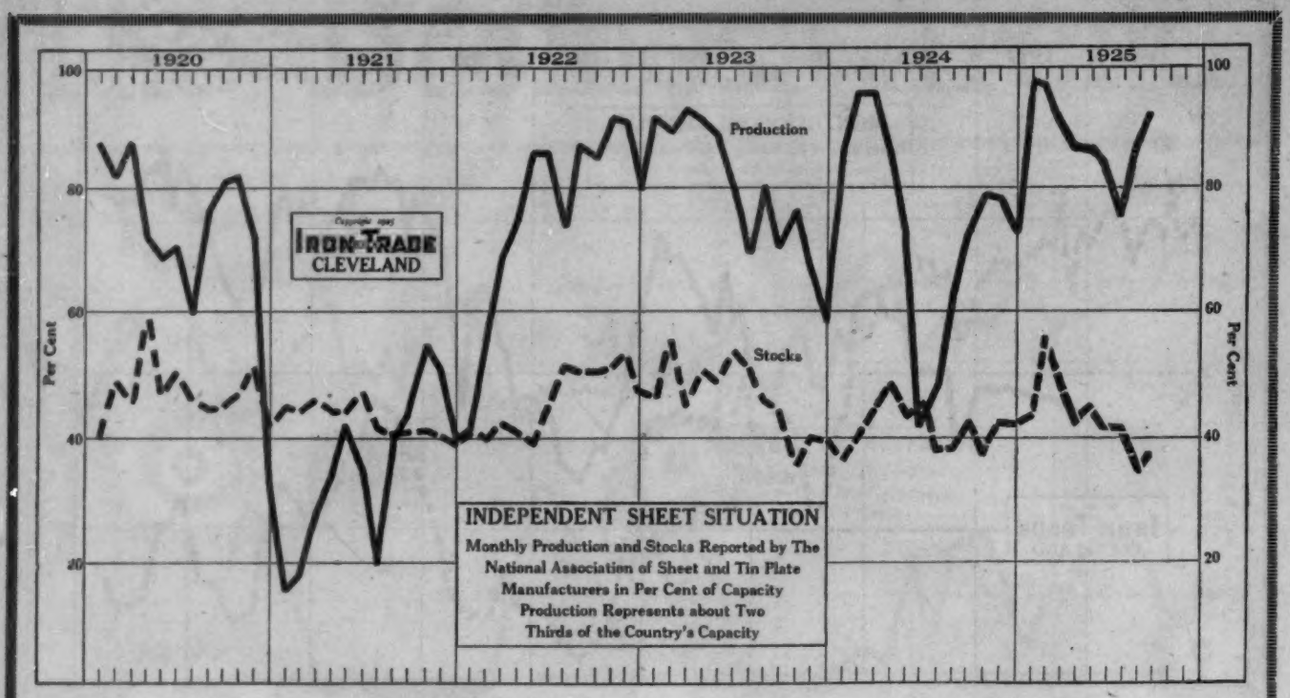
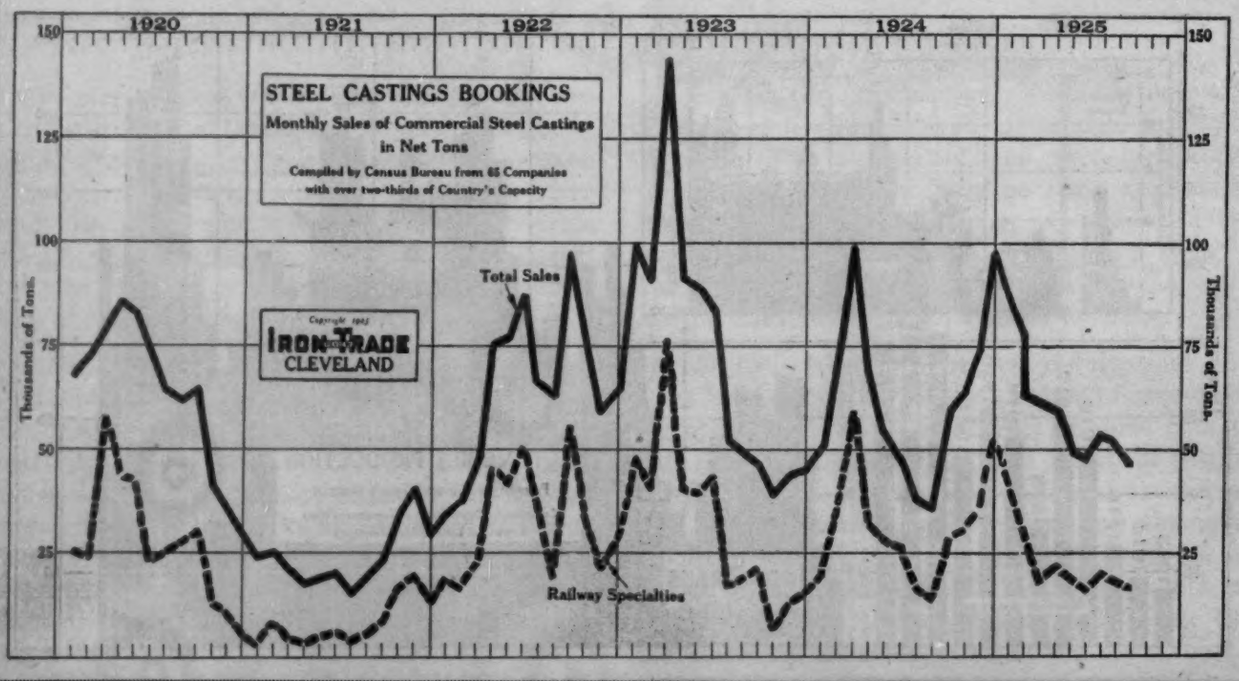


Independent Sheets

INCREASES were registered for September production, sales, and shipments reported by sheet makers affiliated with the National Association of Sheet & Tinplate Manufacturers. Sales increased 46,537 tons and shipments increased 18,846 tons. Production increased 25,598 tons. Output in September represented 92.7 per cent of capacity against 87.2 per cent of capacity in August. Stocks on hand held practically unchanged in September at 37.9 per cent of capacity.

Steel Castings

BOOKINGS of steel castings in September sank to 48,827 tons making the total the second lowest for any month this year. It compared with 62,509 tons booked in September 1924. The per cent of capacity represented by bookings was 48.6 per cent. Bookings of railway specialties declined to 17,008 tons compared with 18,235 tons in August and 29,567 tons in September 1924. Miscellaneous bookings stood at 31,819 tons compared with 33,123 tons in August and 32,942 tons in September 1924.



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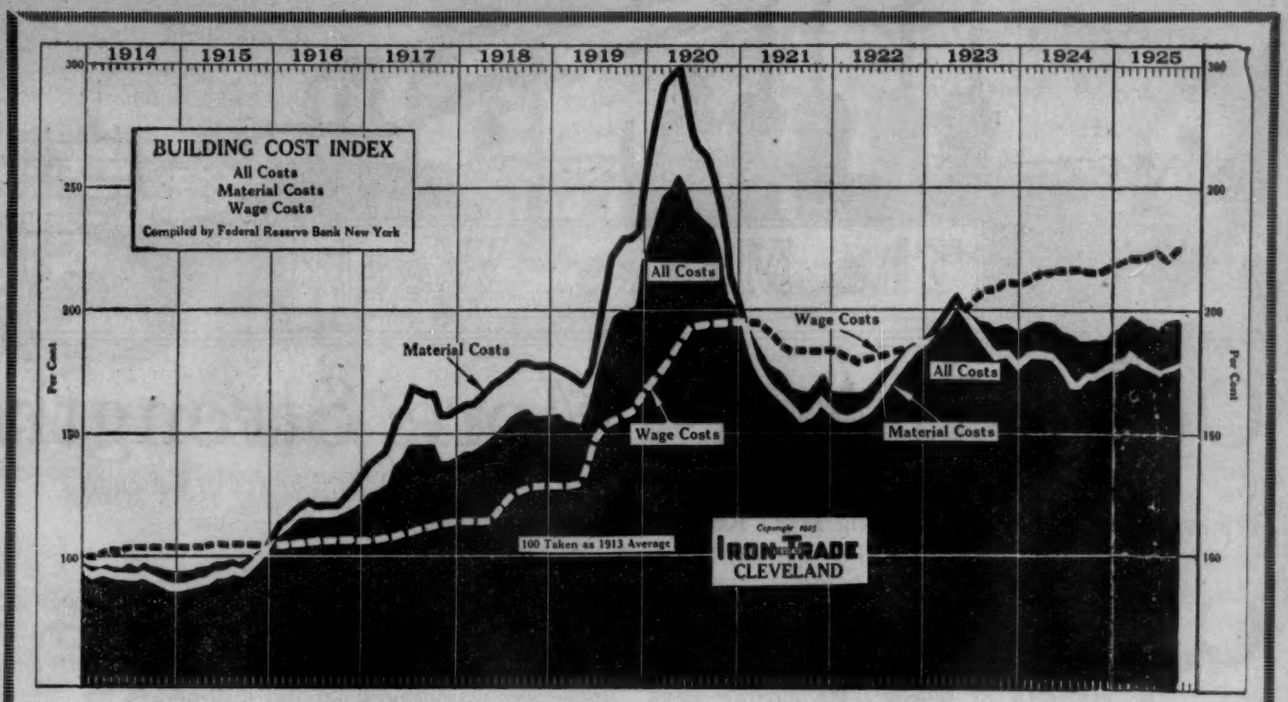
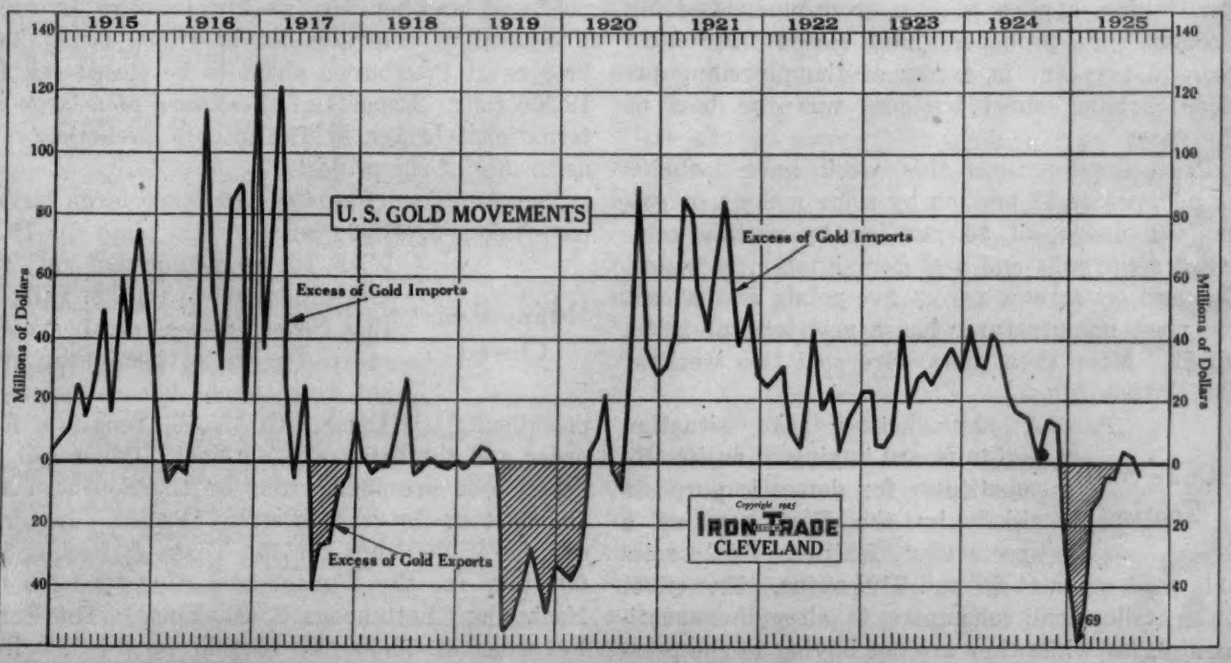


Building Costs

THE declining tendency of building costs was checked in July, and subsequent months have brought increases. This is shown by the index compiled by the Federal Reserve Bank of New York. Wages have climbed to a new height for all time at 119 per cent over 1913 average. Building materials have climbed to 74 per cent over 1913 compared with 72 per cent over 1913 in August and 70 per cent in July. All costs at 92 per cent above 1913 compared with 90 per cent in August and 89 in July.

Gold Movements

IN RECENT months the United States has been exporting more gold than it has imported, but that situation has now undergone a drastic change. This has resulted from the reduction in the discount rate of the Bank of England which had the effect of releasing large amounts of gold from Great Britain. The fresh inflow of gold to this country has been running at the rate of $1,000,000 daily. This has increased the supply of banking credit and helped to check the rising tendency of interest rates.



October Adds More Strength

Incoming Orders, Operations and Prices Continue To Rise—Shipments in Chicago Territory Making High Records—Coke Prices Still Soaring—New York Central Places Large Rail Tonnage

OCTOBER proved a very satisfactory month to the iron and steel industry adding materially to unfilled orders, to operations and to the strength of prices. Its closing days have witnessed a further extension of this rising movement, with general sentiment perhaps at its most cheerful point in the entire revival. Buyers have supplied new business in the liberal fashion of recent weeks. Producers with mounting backlogs and more uncertain over future costs, have made various new attempts to establish higher prices. Ingot operations are hugging close to 80 per cent.

The momentum of the present situation is being registered by various comparative records. This is especially true in the Chicago district where shipments of pig iron and finished steel already have exceeded the 12 months of 1924 and may reach the highest point for all time. The same thing applies to cast iron pipe. Leading wrought pipe producers have closed their fiscal year 25 per cent in excess of the preceding period. October sheet business was the best of the year.

Price developments this week have included an advance of $2 per ton by some makers of galvanized sheets, of $3 per ton by certain cold-rolled strip mills and a stiffer situation in plates. Cap and set screws are up five points and a leading rivet manufacturer has a new base of 2.60c, up $2. More sheet bars were sold this week at $35, Pittsburgh.

Coke Still Soaring

A skyrocketing coke situation due to forced buying of anthracite substitutes for domestic purposes chiefly by the East remains a spectacular feature. Spot sales this week were at $9 and $10, ovens. The effect on metallurgical consumers is altogether sentimental, for while they are not buying in the present flurry, they see a very definite prospect of higher prices for themselves later. A Pittsburgh steelmaker seeking 25,000 tons of furnace coke was quoted $9 and declined to buy.

Pig Iron On The Move

Another upward sweep of 50 cents to $1 per ton became effective generally in pig iron this week. This is based on the heavy immediate needs of melters which is driving them into the market steadily and on the reluctance of producers to obligate themselves for the future. Buying on the present scale has not been seen in the last three years. The Buick Motor Co. after buying 14,000 tons for last quarter is seeking 21,000 for first quarter. Inquiry for steelmaking grades has come to life at Pittsburgh. Valley basic has gone to $19.50.

Led by an award of 20,000 tons for an office building at New York, construction activity has produced another big weekly tonnage in steel. The total of contracts let is 47,599 tons. Two bridges at Pittsburgh about to be closed call for 19,000 tons. Reports of the award of a large international bridge at Detroit are preliminary to assurance of the project.

The American Can Co. and other large buyers have taken 5,000,000 boxes of tin plate for 1926.

Many Rails Closed

With the announcement of the award of 206,745 tons of rails by the New York Central system, railroad participation in the market this week has been more prominent. Of these rails 155,000 tons is a firm order and the balance is optional. Other rail orders closed are 45,200 tons by the Southern and 40,000 tons by the Missouri Pacific. Inquiries call for 25,000 tons for the Texas & Pacific, 15,000 tons for the Wabash and 8500 tons for the Nashville, Chattanooga & St. Louis. The Santa Fe order of 75,000 to 100,000 tons is awaited.

The Frisco is expected to place 4000 and the Missouri Pacific 3000 cars this week. The New York Central has a new inquiry for 1000 gondolas.

After keen competition, the Pennsylvania railroad has distributed 60,000 tons of car repair steel among three leading producers.

A more buoyant market is defined by IRON TRADE REVIEW composite of 14 leading iron and steel products which shows the widest advance in 10 months. This week's figure is $37.95 against $37.61 last week, $37.45 three months and $38.61 one year ago.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Oct. 28, 1925	Sept. 1925	July 1925	Oct. 1924
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.26	21.01	20.76	21.76
Basic, valley	19.50	18.25	18.00	19.00
Basic, eastern del., eastern Pa.	20.50	20.50	21.25	20.00
*No. 2 foundry, del., Pittsburgh	21.76	20.51	20.26	21.26
No. 2 foundry, Chicago	22.00	21.10	20.30	20.50
*Southern, No. 2, Birmingham	20.00	18.50	18.00	17.50
*Southern Ohio, No. 2 Ironton	20.00	19.50	19.00	20.00
**No. 2X, Virginia furnace	23.00	23.00	23.00	24.50
**No. 2X, eastern, del. Phila.	23.26	21.86	21.26	21.36
Malleable, valley	20.00	18.75	18.50	19.50
Malleable, Chicago	22.00	21.10	20.30	20.50
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	21.26	19.86	19.76	20.76
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	8.50	3.45	2.80	3.00
Connellsville foundry, ovens	8.50	4.20	3.75	4.00
SEMIFINISHED MATERIAL				
Sheet bars, open hearth, Youngstown	33.50	34.25	33.80	36.65
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	35.00	37.20
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	36.60
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	1.95	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.00
Steel bars, Philadelphia	2.27	2.27	2.32	2.32
Iron bars, Philadelphia	2.17	2.12	2.17	2.18
Iron bars, Chicago, mill	1.90	1.90	1.95	2.10
Beams, Pittsburgh	1.90	1.90	2.00	2.00
Beams, Philadelphia	2.17	2.17	2.22	2.12
Beams, Chicago	2.10	2.10	2.10	2.00
Tank plates, Pittsburgh	1.80	1.80	1.90	1.80
Tank plates, Philadelphia	2.02	2.07	2.22	1.92
Tank plates, Chicago	2.10	2.10	2.10	2.00
Sheets, black, No. 28, Pittsburgh	3.15	3.15	3.15	3.40
Sheets, blue anl., No. 10, Pittsburgh	2.30	2.30	2.30	2.60
Sheets, galvanized, No. 28, Pittsburgh	4.30	4.20	4.20	4.60
Sheets, black, No. 28, Chicago	3.35	3.35	3.35	3.75
Sheets, blue anl. No. 10, Chicago	2.45	2.45	2.45	2.85
Sheets, galvanized, No. 28, Chicago	4.45	4.45	4.40	4.75
Wire nails, Pittsburgh	2.65	2.65	2.70	2.75
Wire nails, Chicago	2.70	2.70	2.80	2.90
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	19.50	19.00	17.20	18.40
Heavy melting steel, eastern Pa.	17.00	17.25	16.00	17.20
Heavy melting steel, Chicago	16.25	16.45	15.35	16.25
No. 1 wrought, eastern Pa.	18.25	18.25	18.25	18.75
No. 1 wrought, Chicago	17.25	17.05	15.90	15.95
Rails for rolling, Chicago	19.50	19.00	17.45	17.20

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Oct. 28, 1925)	$37.95
Last week (Oct. 21, 1925)	37.61
One month ago (September, 1925)	37.35
Three months ago (July, 1925)	37.45
One year ago (October, 1924)	38.65
Ten years ago (October, 1915)	26.19
Twelve years ago (October, 1913)	24.91

Late News Flashes

Great Tin Plate Orders Placed

New York, Oct. 27.—The American Can Co. and other large consumers of similar class have placed over 5,000,000 boxes of tin plate with the American Sheet & Tin Plate Co. for 1926 delivery. The price is reported under $5.50 per base box, Pittsburgh.

Resume Bethlehem Hearings Nov. 4

Washington, Oct. 27.—The federal trade commission is to resume taking testimony in the complaint against the Bethlehem-Lackawanna-Midvale merger Nov. 4 in Baltimore. Hearings will take about two weeks, after which the case will be transferred to Pittsburgh, and probably later to Washington where the commission will complete taking evidence. Later the Bethlehem Steel Corp.'s testimony will be submitted. Hearings were suspended early last spring in Baltimore.

Chicago Is Making Records

Chicago, Oct. 27.—Shipments of leading iron and steel products are breaking all records. Up to Oct. 1 more merchant pig iron had been shipped from Chicago district furnaces than in all of 1924 and it seems likely that 1925 shipments will set a new high record for all time. Shipments of finished steel up to Oct. 15 were slightly in excess of all 1924. Shipments of cast iron pipe in the Central West have also broken the record. In practically all products the fourth quarter apparently will be the heaviest of the year.

More Furnace Capacity Needed

Pittsburgh, Oct. 27.—By adding another blast furnace at Clairton the Carnegie Steel Co. has 34 out of its 56 furnaces blowing. Another one is scheduled to go at Carrie within a week. The latest change among independent blast furnaces was the adding of the No. 3 stack of the Shenango Furnace Co.

The Carnegie Steel Co. failed to maintain its 75 per cent rate last week, going to 73 per cent. However, 75 per cent is scheduled for this week. Independent steel companies are on a 75 per cent basis.

M. A. Hanna Co. Reports Profit

Cleveland, Oct. 27.—M. A. Hanna Co., pig iron, iron ore and coal, reports net income of $223,237 for the third quarter and a deficit of $292,290 for the nine months of 1925. The third quarter earnings compare with a loss of $101,880 in the second quarter and a loss of $413,647 in the first quarter.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch, base

Pittsburgh, open hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	32.50
Philadelphia	39.30 to 39.80
Chicago	35.00
Forging, Pittsburgh	49.00
Forging, Philadelphia	44.30 to 44.80

SHEET BARS

Pittsburgh	35.00
Youngstown	33.50

SLABS

Pittsburgh	$35.00
Youngstown	32.50

WIRE RODS

¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	47.00

Standard extras, $2.50 per ton over ⅝-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.07c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.80c to 1.90c
Philadelphia	1.92c to 2.07c
New York	1.94c to 2.09c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	1.95c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.22c to 2.32c
New York, soft steel	2.24c to 2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.10c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c to 2.10c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.12c to 2.22c
New York, common iron	2.14c to 2.24c
Chicago, common iron	1.90c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c to 2.50c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.75c to 3.90c
Worcester, Mass., Chicago	4.15c

Cold Finished Steel

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.40c
Less carload	2.65c
Steel shaft'g turned and polished Pittsburgh, Chicago	2.40c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steels

Pittsburgh or Chicago

S. A. E. Series—

2300 (3½ per cent nickel	4.60c to 4.75c
3100 (Nickel chromium)	3.60c to 3.65c
6100 (Chrome vanadium)	4.40c to 4.50c
6100 (Chrome vanad. spring)	3.85c to 4.00c
9250 (Silico mang. spring)	3.30c to 3.40c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mills	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill	1.60c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16 inch and smaller, Pitts.	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c
Coated nails, count keg	1.80c to 1.85c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh base	3.15c to 3.25c
No. 28, Philadelphia, delivered	3.47c to 3.52c
No. 28, Gary, Indiana Harbor	3.25c to 3.30c
No. 28, Chicago, delivered	3.30c to 3.35c

TIN MILL, BLACK

No. 28, Pittsburgh	3.15c to 3.25c
No. 28, Gary base	3.35c to 3.40c

GALVANIZED

No. 28, Pittsburgh base	4.30c to 4.40c
No. 28, Philadelphia, delivered	4.62c
No. 28, Gary, Indiana Harbor	4.40c to 4.50c
No. 28, Chicago, delivered	4.45c to 4.55c

BLUE ANNEALED

No. 10, Pittsburgh base	2.30c to 2.40c
No. 10, Philadelphia, delivered	2.62c
No. 10, Gary, Indiana Harbor	2.40c
No. 10, Chicago, delivered	2.45c

AUTOMOBILE SHEETS

No. 22, Pittsburgh base	4.40c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 2¼ to 3½-inch	33½
Charcoal iron, 2¼ to 4½-inch	5
Seamless hot rolled, 2¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, f.o.b. mills	2.90c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	46.00 to 47.00
Six-inch and over, Birmingham	42.00 to 43.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
*Flat and round head stove bolts	80, 10 and 5 off
Tap bolts	80 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off
*Stove bolts 80, 10 and 5 off plus	2½ in bulk
Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads Pittsburgh and Cleveland	2.40c to 2.50c
Structural rivets, carloads, Chicago	2.60c
**Rivets, 7/16-in. and smaller Pittsburgh and Cleveland	70, 10 and 5 off
**Rivets, 7/16-in. and smaller Chicago	70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chi. dist.	$6.30 to $6.40 off
Wrought, c.l., Pitts. dist.	6.25 off
Lock washers f.o.b. factory	85 off

Pig Iron

Prices Rapidly Advancing in All Districts—Valley Market $20 to $20.50—Chicago Shipments Breaking Records

THE whole price structure of the pig iron market has been elevated 50 cents to $1 in the past week, and further increases appear to be a matter of short time. Buyers have been forced into action, first because of the heavy melt and orders in hand, and because of the effect the fuel situation is likely to exert on the pig iron market. In covering first quarter needs now, they are buying further ahead than for any period in the past three or four years. Inquiries are extensive, valley makers are figuring on requests for around 50,000 tons, a sudden expansion for them, compared with recent weeks. No. 2 foundry iron now is held at $20 to $20.50, with basic at $19.50.

PITTSBURGH, Oct. 27.—An active pig iron market shows users have awakened to possibility of additional price advances. The total inquiry here yesterday was for 40,000 to 50,000 tons, including the Buick Motor Co.'s inquiry for 21,000 tons. One merchant furnace advanced No. 2 foundry iron today to $20.50 valley for prompt delivery, and first quarter. Four or five others still are quoting $20, valley, an advance of $1 in two weeks. The Westinghouse Electric & Mfg. Co. wants 700 tons of foundry iron for Pittsburgh. The Pressed Steel Car Co. wants 1000 tons of malleable and another malleable user a larger tonnage; $20 minimum is quoted. The Lackhart Iron & Steel Co. is understood to have bought a large tonnage of gray forge, $19.50 valley, failing to bring the order. Steelmaking iron has advanced $1, basic going to $19.50 and bessemer to $20.50. In addition to the Sharon Steel Hoop Co.'s inquiry for 5000 tons of basic for first quarter, two other users want 7000 tons for that delivery, including the National Malleable & Steel Castings Co. Two smaller buyers are inquiring for approximately 2000 tons. After selling 1000 tons of bessemer late last week for first quarter at $20, a merchant interest raised its price another 50 cents. One sale of 150 tons was made at $20.50.

New York, Oct. 27.—It is estimated 25,000 tons of pig iron sold in this district in the past week, most of it foreign iron, or domestic in speculative hands. Producers generally hesitate to sell much, because of the coke situation. Eastern Pennsylvania iron sold at $22, base furnace, for this year and first quarter. This is minimum for first quarter, although $21.50 has not disappeared for last quarter. Buffalo iron is firm at $20 for this year and $21 for first quarter. Higher prices are expected. Indian iron is firm at $22 base, duty paid. European iron ranges from $21 to $22.50. duty paid. The Thatcher Furnace Co. is expected to buy about 2000 tons today. The A. P. Smith Mfg. Co. is inquiring for several hundred tons. Operators who expected to relight furnaces now have no definite dates, owing to the coke situation.

Boston, Oct. 27—Buying of pig iron for first quarter has been more active during the past week at Boston. Prices from nearly all producing districts have advanced nearly $1 in the trading of the last few days, and this has stimulated buying by small consumers who have not covered. Eastern furnaces take an independent attitude concerning first quarter iron. Practically no formal inquiry is before the trade, but continued active buying is looked for. Sales of the week at Boston have totaled in excess of 10,000 tons. The price of No. 2 iron is $20.50, Buffalo, and $22, base Eastern Pennsylvania furnace.

Pig Iron Prices

Prices per gross tons

Bessemer, valley	$20.50
Bessemer, Pittsburgh	22.26
Basic, valley	19.50 to 20.00
Basic, Pittsburgh	21.26 to 21.76
Basic, Buffalo	19.00 to 19.50
Basic, del., eastern Pa.	20.50 to 22.00
Malleable, valley	20.00 to 20.50
Malleable, Pittsburgh	21.76 to 22.26
Malleable, del., Cleveland	21.50
Malleable, Chicago	22.00
Malleable, Buffalo	19.50 to 20.50
Malleable, del., eastern Pa.	23.25 to 23.50
No. 1X, eastern del., Phila.	22.76 to 23.26
No. 1X, Buffalo	21.00 to 21.50
No. 1 foundry, Chicago	22.50
No. 2 foundry, valley	20.00 to 20.50
No. 2 foundry, Pittsburgh	21.76 to 22.26
No. 2 foundry, Buffalo	19.50 to 20.50
No. 2 foundry, Chicago	22.00
No. 2 foundry, Granite City	22.50 to 23.00
No. 2 foundry, Ironton fur.	20.00
No. 2 foundry, del., Cleveland	21.50
No. 2 foundry, del., Phila.	22.76
No. 2 foundry, N. J., tidewater	22.89 to 23.74
No. 2X, Eastern del., Phila.	23.26
No. 2X, east. N. J., tidewater	23.36
No. 2X, eastern del., Boston	24.65 to 25.65
No. 2X, foundry, Buffalo fur.	20.00 to 21.00
No. 2X, Buffalo, del., Boston	23.91 to 24.41
Continental foundry f.o.b. Boston	21.50 to 22.00
India, 2.25 to 2.75 silicon, delivered cars Boston	22.00 to 22.50
No. 2 Alabama, Birmingham	20.00
No. 2 Alabama, Cincinnati	24.05
No. 2 Tenn., Birmingham	19.00
No. 2 Tenn., Cincinnati	23.05
No. 2 southern, Philadelphia	26.01
No. 2 southern, Chicago	27.01
No. 2 southern, Chicago (barge and rail)	25.18
No. 2 southern, Boston (rail and water)	25.91
No. 2 southern, Cleveland	26.01
No. 2 southern, St. Louis	25.17
No. 2X, Virginia furnace	22.50 to 23.50
No. 2X, Virginia, Phila.	27.67 to 28.67
No. 2X, Virginia, Jersey City	28.04 to 29.04
No. 2X, Virginia, Boston	28.42 to 29.42
Gray forge, eastern Pa.	20.50 to 22.00
Gray forge, val. del. Pitts.	21.26
Low phos., standard, valley	27.50 to 28.50
Low phos., standard, Phila.	28.79
Low phos., Lebanon, furnace	23.50 to 24.50
*Low phos., English	24.01
Charcoal, Birmingham	30.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $25.50; 6 per cent $26.50; 7 per cent $27.50; 8 per cent $28.50; 9 per cent $30.00; 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $40.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; 14 per cent $42.00; 15 per cent $44.50; 16 per cent $47.00; 17 per cent $49.50.

*Duty paid, delivered Philadelphia consumers.

Philadelphia, Oct. 27.—Pig iron prices are advancing, Eastern Pennsylvania foundry, minimum price for this year is $21.50, base furnace. Two makers are not shading $22. All makers quote $22, base, for first quarter. Only moderate tonnages have been sold. Makers are not anxious to sell. Those buying coke need a higher pig iron price. Those making their own coke can make more money by selling the coke for domestic heating. All expect much higher pig iron prices. Importers are selling considerable Indian, Continental and English iron, mostly at $22, base, duty paid. About 1000 tons of low phosphorus iron has been sold at unchanged prices. Sales of Virginia iron are restricted to carloads at unchanged prices.

The Bethlehem Steel Corp. is scheduled to resume production of copper bearing low phosphorus iron in the next few weeks.

Buffalo, Oct. 27.—Sharp advances in prices of pig iron are announced by Buffalo makers. The lowest base on fourth quarter iron now quoted by any Buffalo furnace is $20, and one or two say they will not sell under $20.50 base. Full or fractional differentials are demanded on all business. First quarter prices average 50 cents over those for the last quarter. Inquiry is estimated at 18,000 to 25,000 tons. Last week's sales were in excess of 10,000 tons. The low sellers of the district are firm at $20, base, and are asking $20.50, and in most cases $21, for first quarter tonnage. Massey-Harvester foundry No. 2 at Batavia, N. Y., has resumed operation after being closed for three years.

Cleveland, Oct. 27.—Forward buying of pig iron is gaining momentum. Many consumers are anxious to cover because of uncertainties of the coke situation and are buying further ahead than at any other time in the last three years. Sales by furnace in-

terests represented here amounted to 55,000 tons the past week. Current inquiries total 40,000 tons, including one from the Buick Motor Co. for 21,000 tons for first quarter, following a purchase of 14,000 tons last week for fourth quarter. The Westinghouse Electric & Mfg. Co. is in the market for a medium size tonnage for November for its Cleveland plant. The only Cleveland furnace remaining in the market has raised its price $1 in a week to $21, base furnace, for local delivery, fourth and first quarter. Most of 5000 tons taken during the week was closed at $20.50, base. For outside delivery $20.50, base is asked. A lake furnace which raised to $22 a week ago took around 5000 tons at that figure, and now quotes $23. Elsewhere, $21.50 to $22 represents the lake furnace range, and it is believed $21 can be done on tonnage. One of the furnace interests represented here has taken sizable ordrs at $20, base Buffalo, for fourth quarter, and $21 for first quarter, and at $20, base, valley, for fourth or first quarter. Several sales in nearby territory recently were closed with a valley furnace at $19.50, base, furnace. An inquiry for a small ton-

(*Concluded on Page* 1117)

Ferroalloys

Coke Situation Causes $1 Advance In Spiegel—Other Alloys Firm

New York, Oct. 27.—Several thousand tons of spiegeleisen, mainly for first quarter, have been sold and the market has advanced $1 on account of the coke situation. The prevailing figure now is $34, furnace for 2 per cent with concessions on large lots. One consumer bought 600 tons of English ferromanganese and several smaller lots were sold. Heavy first quarter buying is expected in November. The price is firm at $115, duty paid tidewater.

Special ferroalloys are unchanged with specifications active. Ferrotungsten ranges from $1.05 to $1.15 a pound contained. Ferrovanadium ranges mostly from $3.25 to $3.75 a pound contained. Ferrosilicon and ferrochrome are unchanged. Chrome ore is around $22.50 to $23 a ton and tungsten ore $11.75 to $11.92, though a few prices are outside this range.

Pittsburgh, Oct. 27.—Not much inquiry for ferroalloys has developed for first quarter or first half. Because of the fuel situation, where present coke prices mean increases in ferromanganese production costs, makers are not soliciting such inquiries. The prompt market price, $115, seaboard base, on ferromanganese is particularly strong. Small sales continue to be made from time to time. Importers indicate that prices for next year must be higher. Small quantities also are developing in ferrosilicon, ferrochrome, ferrotungsten, etc., but sales are few. Some additional spiegeleisen activity is noted for first quarter and first half.

Chicago, Oct. 27.—Spiegeleisen has been advanced $1 a ton to $34, domestic furnace, for carloads but no sales at the new price are reported. Ferromanganese is firm at $115, seaboard, with sales limited to carloads.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	33.00 to 34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	1.05 to 1.10
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 3.90
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent material)	122.50

†Duty paid

Coke

Prices Advancing In All Districts—Some Furnaces Negotiating for First Quarter

COKE quotations continue strongly upward as demand for domestic fuel increases. Standard Connellsville furnace coke is selling at $8.50 to $9.75, ovens, compared with $7.50 to $8 a week ago, while crushed coke has brought $10 and higher, an advance of $1 over the maximum reported last week. Some furnace interests expect protection for first quarter at lower figures.

Pittsburgh, Oct. 27.—Wide variations in beehive coke prices are the inevitable result of the speculative market created in the past few weeks by eastern purchasers of anthracite substitutes. The standard furnace grade has sold at $8.50 to $9.75 in the past few days. A middle interest obtaining the maximum bought at a much lower figure. Several oven operators now are holding surplus tonnage in reserve for crushing, obtaining $9.50 to $10. Even first drawings have sold at nearly that minimum. Medium and high sulphur coke is bringing the same levels as standard. Recent large sales at $8 or higher involve 4000 tons and 9000 tons. The usual purchases involve ten or 15 carloads, with a few of 1000 to 2500 tons, generally made to eastern distributors, some to South Amboy and others to New York harbor piers for barge delivery. It is expected in some quarters that coke producers may protect regular blast furnace customers for first quarter at some figure below the prices openly quoted. A few blast furnaces are inquiring tentatively for the first quarter. The Jones & Laughlin Steel Corp. wanted 25,000 tons for November, but receiving $9 prices decided not to buy. Foundry coke inquiries also are appearing for first quarter. Some makers are naming reasonable figures to their regular trade, exclusively for delivery this year. Foundry coke has sold for prompt shipment at $8.50 to $9.

Production of coke in the Connellsville region for the week ended Oct. 17 was 143,440 tons against 129,080 tons the preceding week, according to the *Connellsville Courier*.

New York, Oct. 27.—Beehive coke is bringing $8 to $10, Connellsville, for domestic fuel. Foundries generally are under contract and the market is not clearly defined. One foundry needing several carloads paid $8.50, Connellsville. By-product coke was not advanced last week as expected and still is $10.41, delivered at Newark. A price of $10.90 is expected this week.

Cleveland, Oct. 27.—A Painesville, O. maker of by-product foundry coke has advanced its price for November to $9.50, ovens, an increase of $2 over the October price. A similar advance has been made on domestic grade, now quoted at $10.

St. Louis, Oct. 27.—Coke producers are deluged with orders for prepared domestic sizes. All grades are active, even breeze being in strong demand. The local by-product interest is selling considerable more than current output. The increased melt of pig iron and scrap is reflected in numerous requests for expedited shipments of foundry coke. Recent advances in prices and strong general demand are opening the way for southern coke, fair tonnages of which have been placed in the surrounding competitive territory.

Coke Prices

Beehive, Ovens	
Prices per net ton	
Connellsville, foundry	$8.50 to 9.50
Connellsville, furnace	8.50 to 9.75
New River foundry	7.50
New River furnace	6.00
Wise county furnace	4.50 to 5.00
Wise county foundry	5.00 to 6.00
Alabama foundry	5.00 to 5.50
Alabama furnace	4.50 to 5.00
By-Product	
Foundry, Newark, N. J.; del.	$10.91
Foundry, Chicago, ovens	10.25
Foundry, New England, del.	12.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill	10.00
Foundry, Birmingham	4.75 to 5.00

The Market Section

Plates

Market More Active, With Orders for Car Steel Predominating—Prices Show Little Change

A LARGE aggregate of plate tonnage placed recently, mainly in medium size lots, has not had an appreciable effect on prices, and 1.80c, Pittsburgh, still is available though there is a stiffening tendency. The largest current award is the Pennsylvania railroad's orders for car repair steel, involving 60,000 tons, and distributed among three makers.

PLATE PRICES, PAGE 1102

Chicago, Oct. 27.—Plate deliveries are beginning to string out despite the absence of car buying. On certain specifications the mills can do no better than four to six weeks and if sizable car buying should develop the mills would become congested. This condition results from outstanding business in light plates, especially sizes bordering on strip. Mills are receiving good specifications. Plates are strong in the Chicago district at 2.10c, Chicago.

The Marlin Oil Co. is inquiring for 2200 tons of tank plates for Kansas City.

Philadelphia, Oct. 27.—The recent volume of plate business is maintained, but is insufficient to support operations at 50 per cent. The market has weakened, effectual prices being 1.65c to 1.75c, Pittsburgh, with lower in some instances.

New York, Oct. 27.—The Carnegie Steel Co. has booked 2000 tons of plates and 900 tons of shapes for an Eastern Steamship Co.'s boat.

Pittsburgh, Oct. 27.—Plates are in good demand but the majority of orders are small. Certain mills however, are in receipt of large orders from railroad car builders. A local mill received 8000 tons from the American Car & Foundry Co., for cars for the Atlantic Coast Line. The Carnegie Steel Co., as previously indicated, will furnish approximately 35,000 tons for repairing cars for the Pennsylvania railroad. Fabricators are receiving limited orders for small tanks, stacks, stand pipes, etc. The Riter-Conley Co. received about 500 tons of such work last week. While 1.90c Pittsburgh, is being quoted in some directions, plates still are available at 1.80c.

Cleveland, Oct. 27.—Something of a stiffening tendency is noted as the mills are better filled and buyers show less desire to shop about on ordinary lots. Larger mills have taken business at 1.85c, Pittsburgh or 2.04c, Cleveland and smaller makers have been booking at 1.90c and even 2.00c, Pittsburgh. However, 1.80c has not disappeared. New tonnage is keeping up well. Several mills will furnish about 1000 tons for recent locomotive orders to builders in this territory. A Brooklyn pipe line requiring 1500 tons is pending.

Cincinnati, Oct. 27.—The Louisville & Nashville Railroad has placed an order with the Tennessee Coal, Iron & Railroad Co., for 780 tons of plates and sheets, which presents its requirements for the balance of this year. The Jones & Laughlin Steel Corp. has taken 1400 tons of work from the Big Four railroad.

CONTRACTS PLACED

8000 tons to a Pittsburgh steel interest by the American Car & Foundry Co., Huntington, W. Va., for building 750 cars for the Atlantic Coast Line.
2000 tons, boat for Eastern Steamship Co., to Carnegie Steel Co.
1400 tons, work for Big Four railroad, to Jones & Laughlin Steel Corp.
500 tons to the Riter-Conley Co. for miscellaneous small tanks for various destinations.

CONTRACTS PENDING

425 tons, small tanks for a California oil company; bids being received.
150 tons, boilers for Los Angeles; Llewellyn Iron Works, low bidder.
1500 tons, penstock for San Joaquin Light & Power Co., Fresno, Calif.; bids in Nov. 1.
3000 tons, penstock for Feather River Power Co., Calif.; specifications out.
1500 tons, pipe line, Brooklyn, N. Y.; pending.

Semifinished

More Sales of Sheet Bars, Billets and Slabs at $35, Pittsburgh—Specifications Heavy

WHILE sheet bars, billets and slabs are available at $33.50, valley, Pittsburgh quotations apparently have not deviated from $35, as there has been good sales of all three grades at that price during the past week, and none so far as known at $33.50. New demand for billets and slabs has increased in the Pittsburgh district.

SEMIFINISHED STEEL PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Billet and slab demand has increased and several orders for 1000 tons or more have been noted. Reports of $33.50 Pittsburgh prices are refuted by the fact that the orders were taken at $35, Pittsburgh. Specifications against fourth quarter contracts which carried $35, Pittsburgh, are coming in. One order for small rerolling billets was taken at $35, Pittsburgh, but because of the fact that extras have been waived, this does not necessarily indicate a $33.50 base price for 4 x 4-inch. Confirming the $35 price for 4 x 4-inch rerolling billets is the fact that considerable forging billet business is being done at $40 or at the usual $5 differentiol over rerolling billets for billets of forging quality. Specifications against contracts are coming in at a good rate and some new orders were written last week involving up to 200 tons. On 1000 tons of sheet bars $35, Pittsburgh was done. There is nothing to establish whether or not $33.50, Youngstown, could be duplicated here. Wire rod contracts at $45 are being specified. Skelp is inactive, with a nominal figure quoted of 1.90c although 1.80c undoubtedly would be done on large tonnages.

Youngstown, O., Oct. 27.—Numerous sheet bar consumers made reservation for this quarter's supply a few weeks ago at $33.50, Youngstown, and little new business is coming out. Ton-contracts, and the volume is in keepnage is being specified against these ing with sheet mill operation of 94 per cent. Sheet bars are quotable at $33.50, and slabs and standard billets at $32.50, Youngstown. Demand for the latter commodities is lacking.

Cleve'and, Oct. 27.—A sale of 1000 tons of sheet bars at $35, Pittsburgh, during the past week, is reported by a seller with headquarters here. The valley market, however, is quotable at $33 50, on sheet bars, billets and slabs. Specifications are heavy and the leading maker here continues to operate near capacity.

Test Steel with X-Ray

"Development of Steel Foundry Technique by Use of the X-Ray," was the title of an address delivered by F. H. Morehead, chief engineer of the Walworth Mfg. Co., Boston, before the regular meeting of the Engineers' Society of Western Pennsylvania, Oct. 20 in the William Penn hotel, Pittsburgh. Mr. Morehead gave a brief description of high temperature testing equipment, illustrating with lantern slides curves of temperatures versus physical properties of plain carbon cast steel, a brief description of the X-ray apparatus used, and results obtained by X-ray research.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.00 to 14.00
Boston (dealers)	11.50 to 12.50
Buffalo	18.50 to 19.00
Chicago	16.00 to 16.25
Cincinnati (dealers)	14.00 to 14.50
Cleveland	17.75 to 18.00
Detroit	15.00 to 15.50
Eastern Pennsylvania	17.00 to 17.50
Bethlehem delivery	16.50 to 17.00
New York (dealers)	12.50 to 13.00
Pittsburgh	19.00
St. Louis	15.75 to 16.25
Valleys	18.50 to 18.75

COMPRESSED SHEETS

Buffalo	16.75 to 17.25
Chicago	14.00 to 14.50
Cleveland	14.50 to 15.00
Detroit	12.75 to 13.25
Pittsburgh	17.50 to 18.00
Valleys	16.50 to 16.75

BUNDLED SHEETS

Buffalo	14.50 to 15.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50
Valleys	14.50 to 14.75

SHEET CLIPPINGS, LOOSE

Chicago	9.00 to 9.50
Cincinnati	10.00 to 10.50
Detroit	9.75 to 10.25

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Buffalo	19.50 to 20.00
Chicago	19.75 to 20.25
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	16.50 to 16.75
Detroit	17.00 to 17.50
St. Louis	18.50 to 19.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	14.00 to 14.50
Buffalo	15.00 to 15.50
Chicago	16.75 to 17.25
Cincinnati (dealers)	10.50 to 11.00
Cleveland	13.50 to 13.75
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	10.50 to 12.00
Pittsburgh	14.00 to 14.50
St. Louis	14.00 to 14.50

LOW PHOSPHORUS

Buffalo	20.50 to 21.00
Cincinnati (dealers)	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
Pitts. billet and bloom crops	24.00 to 24.50

SHOVELING STEEL

Chicago	15.75 to 16.25
Pittsburgh	14.50 to 15.00
St. Louis	15.75 to 16.25

KNUCKLES, COUPLERS, SPRINGS

Chicago	19.00 to 19.50
Eastern Pennsylvania	20.50 to 21.50
Pittsburgh	22.00 to 22.50
St. Louis	17.50 to 18.00

FROGS, SWITCHES, GUARDS

Chicago	18.00 to 18.50
Eastern Pennsylvania	17.00 to 17.50
St. Louis	18.00 to 18.50

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	19.00 to 19.50
St. Louis	16.75 to 17.25

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	12.00 to 13.00
Boston (dealers)	13.50 to 14.00
Buffalo, No. 1	15.75 to 16.25
Buffalo, No. 2	18.00 to 18.50
Chicago, No. 1	17.25 to 17.75
Chicago, No. 2	16.00 to 16.25
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cleveland, No. 1	13.50 to 14.00
Eastern Pennsylvania	18.00 to 18.50
New York, No. 1 (dealers)	15.50 to 16.00
Pittsburgh, No. 1	15.50 to 16.00
Pittsburgh, No. 2	19.00
St. Louis, No. 1	14.50 to 15.00
St. Louis, No. 2	16.00 to 16.50

WROUGHT PIPE

Boston (dealers)	11.50 to 12.00
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	12.50 to 13.00

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50

BUSHELING

Buffalo	16.00 to 16.50
Chicago, No. 1	14.00 to 14.50
Chicago, No. 2	9.75 to 10.25
Cincinnati, No. 1 (dealers)	13.50 to 14.00
Cleveland, No. 1	14.00 to 14.50
Cleveland, No. 2	13.75 to 14.00
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	16.00 to 16.50
St. Louis, No. 1	14.00 to 14.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston (chemical)	9.00 to 9.50
Buffalo	12.50 to 13.00
Chicago	9.00 to 9.50
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.25 to 13.50
Detroit	10.75 to 11.25
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	9.75 to 10.25
Pittsburgh	14.50 to 15.00
St. Louis	9.50 to 10.00
Valleys	12.25 to 12.75

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	7.00 to 8.00
Boston (chemical)	11.50 to 12.00
Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Chicago	13.00 to 13.50
Cincinnati (dealers)	10.00 to 10.50
Cleveland	14.50 to 14.75
Detroit	11.25 to 11.75
Eastern Pennsylvania	14.00 to 14.50
Eastern Pennsylvania (chem.)	16.00 to 16.50
New York (dealers)	9.75 to 10.25
Pittsburgh	14.50 to 15.00
St. Louis	12.50 to 13.00
Valleys	13.50 to 13.75

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.50 to 9.00
Buffalo	12.50 to 13.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	14.50 to 14.75
Detroit	11.25 to 11.75
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	9.75 to 10.25
Pittsburgh	14.50 to 15.00

PIPES AND FLUES

Chicago	12.50 to 13.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	12.25 to 12.50
St. Louis	12.50 to 13.00

RAILROAD GRATE BARS

Buffalo	14.50 to 14.75
Chicago	16.25 to 16.75
Cleveland	13.50 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	11.50 to 12.00
St. Louis	13.50 to 14.00

FORGE FLASHINGS

Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	11.00 to 11.50
Cleveland (under 10 in.)	13.75 to 14.25
Cleveland (over 10 in.)	13.75 to 14.25
Detroit	11.25 to 11.75
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	10.00 to 10.50
Chicago	19.00 to 19.50
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	24.00 to 24.50
St. Louis	21.50 to 22.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.50 to 10.00
Buffalo	15.00 to 15.50
Chicago	14.50 to 15.00
Cleveland	15.25 to 15.50
Eastern Pennsylvania	15.00 to 15.50
Pittsburgh	17.50 to 18.00
St. Louis	13.50 to 14.00

STEEL CAR AXLES

Birmingham	18.00 to 20.00
Boston (shipping point)	17.50 to 18.00
Buffalo	20.00 to 20.50
Chicago	19.00 to 19.50
Cleveland	17.50 to 17.75
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	22.00 to 22.50
St. Louis	20.00 to 20.50

SHAFTING

Boston (shipping point)	18.50 to 19.00
Chicago	21.00 to 21.50
Eastern Pennsylvania	23.00 to 24.00
New York (dealers)	18.00 to 19.00
St. Louis	17.50 to 18.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	15.00 to 16.00
Boston (consumers)	17.50 to 18.00
Buffalo, iron	16.00 to 16.50
Buffalo, steel	18.50 to 19.00
Chicago, iron	18.00 to 18.50
Chicago, steel	19.00 to 19.50
Cincinnati	13.50 to 14.00
Eastern Pennsylvania	18.50 to 19.00
New York iron (dealers)	14.00 to 15.00
Pittsburgh, iron	18.00 to 18.50
Pittsburgh steel	21.50 to 22.00
St. Louis, iron	18.00 to 18.50
St. Louis, steel	19.00 to 19.50

NO. 1 CAST SCRAP

Birmingham, cupola	16.00 to 17.00
Boston	19.00 to 19.50
Buffalo	18.50 to 19.00
Chicago, No. 1 machinery	19.50 to 20.00
Chicago No. 1 railroad or agricultural	18.50 to 19.00
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	18.00 to 18.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.50 to 19.00
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.50 to 18.00
San Francisco, delivered	20.00 to 21.00
Seattle	18.00
St. Louis, railroad	17.00 to 17.50
St. Louis, agricultural	17.00 to 17.50
St. Louis, machinery	19.00 to 19.50
Valleys	18.00 to 18.50

HEAVY CAST

Boston	16.50 to 17.00
Buffalo (breakable)	16.50 to 17.00
Cleveland	13.00 to 13.50
Detroit (automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.50 to 15.00
Pittsburgh	17.00 to 17.50

MALLEABLE

Boston, railroad	19.00 to 19.50
Buffalo	19.00 to 19.50
Chicago, agricultural	16.75 to 17.25
Chicago, railroad	18.75 to 19.25
Cincinnati, railroad (dealers)	14.00 to 14.50
Cincinnati, agricultural (dealers)	15.00 to 15.50
Cleveland, agricultural	18.50 to 18.75
Cleveland, railroad	19.50 to 20.00
Detroit	15.75 to 16.25
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	18.50 to 19.00
St. Louis, agricultural	14.00 to 14.50
St. Louis, railroad	15.50 to 16.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	17.50 to 18.00
Boston (dealers)	12.50 to 13.00
Buffalo	17.50 to 18.00
Chicago	19.00 to 19.50
Cleveland	17.00 to 17.25
Eastern Pennsylvania	17.00 to 17.50
New York	15.50 to 16.00
Pittsburgh district	20.50 to 21.00
St. Louis	18.75 to 19.25

LOCOMOTIVE TIRES

Chicago, No. 1	18.00 to 18.50
Chicago, cut	19.50 to 20.00
St. Louis, No. 1	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	18.00 to 18.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	21.50 to 22.00

Scrap

Strength Shown In Small Ways and Prices Gain—Buying is Steady

IN MOST consuming centers prices of important grades have been advanced slightly on better demand, though the gain is not large. It indicates strength based on actual consumption as buying is steady by most users. Absence of large buying removes opportunity for speculative trading. In some cases consumers have large stocks in reserve. Specialties are in good demand.

Chicago, Oct. 27.—Iron and steel scrap is tending upward. Independent melters continue to pay $16.25 for small lots of steel, but dealers refuse to take on tonnages at that price. Two steelmakers are buying cast borings at a level warranting a price of $13 to $13.50. A user is paying the railroads $20 for steel angle bars but refusing to pay dealers over $19.50. Railroad malleable continues to rise on the strength of dealer covering operations. In many cases actual consumer buying is so light prices are nominal. The largest consumer of melting steel is reputed to have over 200,000 tons of steel, mostly inter-company material, on its yards.

Boston, Oct. 27.—Heavy sales of steel scrap in New England have stimulated the market and prices have advanced in several grades. Recent lists include 7000 tons for the Maine Central, 3000 tons for the Bangor & Aroostook railroad, 1500 tons for the Boston Elevated, 4000 tons for the Boston & Maine railroad, and 1000 tons for the Bethlehem Shipbuilding Co. at its Fore River ship yards. One lot of more than 2000 tons was placed at $12.70 shipping point.

New York, Oct. 27.—A fairly consistent consuming demand for scrap prevails. No large tonnages have been noted recently, but the total volume of business is good. Prices show little change.

Pittsburgh, Oct. 27.—Additional orders for heavy melting steel scrap at $19 and for compressed sheets at $18 have been received from a consumer down the Ohio river. This has added strength to the scrap market, which has been growing firmer. Dealers are offering $18.25, Weirton, W. Va., on compressed sheets but sales there recently brought the top figure to $18. A Wheeling foundry paid some high figures for steel specialties and because of scarcity, knuckles and couplers are quoted higher than railroad coil and leaf springs for the time being by 50 cents.

Pennsylvania railroad asks bids Nov. 4 on 37,712 tons and 2311 tons and ten locomotives.

Buffalo, Oct. 27.—There is more activity in the iron and steel scrap market than for several months. Donner Steel Co. has made a substantial purchase, probably more than 10,000 tons, of heavy melting steel, at $18.50 to $19. The Bethlehem Steel Co. bought a tonnage around $18 but has lower grading requirements than the former. One other consumer has bought at $18.50 and dealers are predicting the next tonnage sales will be at $19.50 or possibly $20.

Detroit, Oct. 27.—Continued slight improvement marks the iron and steel scrap market here. Tonnage being moved is slowly increasing in volume. Quotations are stronger and prices on some grades are slightly higher. Price cutting is decreasing.

St. Louis, Oct. 26—Inquiries and sales of iron and steel scrap are more numerous. Consumers show more interest and heavy tonnages could be disposed of were sellers willing to make fractional concessions. Purchasing of small lots is active, and represents a large aggregate tonnage. Railroad offerings are 900 tons by the Cotton Belt, 6000 tons by the Chicago, Burlington & Quincy, 3000 tons by the Southern Pacific, 5000 tons by the Rock Island and 250 tons by the Chicago Belt Railway.

Birmingham, Ala., Oct. 26—Steady consumption and strong inquiries bespeak a good market, the only pessimistic note being from dealers that the quotations continue low. Heavy melting steel is held at $13.

Philadelphia, Oct. 27.—While sales of iron and steel scrap are small, activity at Pittsburgh has a strengthening effect. Prices are unchanged but firmer.

Cleveland, Oct. 27.—Iron and steel scrap transactions for the most part are confined to dealers covering on contracts. Consumers are buying sparingly and one steelmaker has issued a holdup order. Prices are strong and unchanged.

Cincinnati, Oct. 27.—Little activity is found in iron and steel scrap though greater strength is apparent, because of activity in other centers. Shipments are accepted but new contracts are lacking. Offers are being made under the market level but dealers refuse to meet prices.

Sheets

Demand Active, Prices Firm—October Business Largest This Year—Galvanized Marked Up

DEMAND for sheets from practically all sources continues at a high average. New tonnage placed on mill books in the Pittsburgh district in October in setting the month's record thus far this year. Galvanized sheets have been advanced to 4.40c by several Pittsburgh and valley makers, while quotations on other grades are firm at recently established levels.

SHEET PRICES, PAGE 1102

Youngstown, O., Oct. 27.—Two Ohio sheetmakers today announced 4.40c as their minimum quotation on galvanized. This is taken in the trade as a forerunner of higher prices for first quarter on all grades. Practically all large consumers of sheets have made reservation for this quarter's requirement, and inquiry is not heavy. Producers generally have sufficient specifications to keep two or three weeks ahead of the mills. Prices are firm and on all new business going on the books, 3.15c is applying on black, 2.30c on blue annealed, and 4.30c on galvanized. No producer in this district is willing to quote for first quarter shipment at current price levels. Similar conditions prevail in the high grade market. The price is firm at 4.40c. District sheet mills this week continue to operate at 94 per cent of capacity.

Boston, Oct. 27.—Sheet prices are soft in New England, despite efforts of a leading seller to advance to 4.30c, Pittsburgh, for galvanized and 3.15c on black. Several hundred tons of black sheets were taken by a Massachusetts consumer recently at 3.10c, Pittsburgh, and 4.25c is readily done for galvanized.

Pittsburgh, Oct. 27.—October will be the best new business month of the year as far as sheet orders are concerned, if during the remaining four days the order receipts keep up the rate maintained during the past three weeks. The situation rapidly is changing in favor of the seller. One important producer here received several orders for full finished sheets in lots of 2100 to 4000 or 5000 tons, some consumers already specifying their December quotas. The majority of these orders carry the new figure, 4.40c Pittsburgh. It is intimated that this price may be advanced before first quarter contracts are accepted. Deliveries are being extended six and eight weeks. Because of a worldwide shortage of spelter, galvanizers are much concerned over future spelter supplies, particularly since the price today at East St. Louis means 9 cents at the mill. Two or three galvanizers

already have gone beyond the 4.30c figure on sheets and are quoting 4.40c Pittsburgh. Others, including the American Sheet & Tin Plate Co., will soon advance their 4.30c figure. Thin gage black sheet orders from Japan have been increasing of late, one important producer here receiving several thousand tons in the past two or three weeks. The black sheet market here is firm at 3.15c, Pittsburgh, although one Ohio maker is quoting 3.25c. Blue annealed is firm at 2.30c.

Philadelphia, Oct. 27.—Sheets are strong. All mills evidently refuse to shade 2.30c, Pittsburgh, on blue annealed; 3.15c for black; 4.30c for galvanized and 4.40c for full finished. Three mills now are asking 2.40c, 3.25c and 4.40c for blue, black and galvanized. Some makers are practically filled for the remainder of the year and are accepting additional orders only from regular customers. Mills generally found September the best month this year, with October close.

Buffalo, Oct. 27.—Sheet demand is brisk and unfilled tonnages are accumulating. Some mills can give no assurance of shipment of quantity orders before January or February. Mill operation is at the highest rate of many months, some records of long standing having been broken by recent production. Prices are firm, 3.15c, Pittsburgh, being quoted on black and 4.30c on galvanized.

Chicago, Oct. 27.—Specifications for sheets are running considerably ahead of shipments, giving western mills the most favorable operating schedule since February and March. Western mills are not pressing contracting. Blue annealed sheets are especially strong. Delivered Chicago prices are 3.30c to 3.35c on black, 4.45 to 4.55c on galvanized and 2.45c on blue annealed. One maker is not taking galvanized business under 4.55c.

Tin Plate

Market Firm—Producers Talking of Advance in Prices

TIN PLATE PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Increasingly high prices of pig tin are a matter of much concern to tin plate producers. They say present pig tin prices would warrant an advance of at least 20 cents per base box in the price of tin plate. No announcement probably will be made until the middle of November regarding the first quarter of first half price to be quoted by the American Sheet & Tin Plate Co., but independent producers are showing a desire for a higher price than the present $5.50 Pittsburgh. Foreign demand is increasing although most individual lots are comparatively small. The increased cost of pig tin and lead also may mean a higher price in terne plate. The McKeesport Tin Plate Co., which had an explosion last week in its power department causing a brief shutdown, is resuming this week.

Strip Steel

Demand Well Ahead of Last Month and Forward Selling Not Welcome

STRIP PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Demand for strip steel is increasing. Strip manufacturers report October orders 15 to 25 per cent over September. Hot strips are firm at 2.30c and cold at 3.75c for prompt shipment only. First quarter contracts are not being solicited and the impression is growing that higher figures will rule for that period, particularly on cold strips. Mill operations are averaging 80 per cent.

Cleveland, Oct. 27.—A leading maker of cold-rolled strip steel has advanced prices $3 a ton to a basis of 3.90c, Pittsburgh and Cleveland.

Pipe

Oil Well Demands Lessening—Mill Operations Still Good—Cast Buying Less Active

BOOKINGS of oil goods has lessened somewhat, inclement weather hindering drilling. Pipe mills continue to average good operations. A. M. Byers Co. reports fiscal year ended Sept. 30 as 25 per cent above last year. Cast iron pipe makers in the Chicago district are booked in December. Buying generally has diminished. Prices hold firm.

PIPE PRICES, PAGE 1102 AND 1140

Pittsburgh, Oct. 27.—Rain in many of the oil drilling sections has caused a decrease in pipe orders for shipment direct to leases. In some directions roads still are passable and a few orders come through for one to five carloads each. Oil country jobber orders occasionally are received but most of the stocks have by now attained well balanced proportions. Jobbers of standard full weight merchant pipe are ordering sparingly but they furnish a good weekly tonnage for many mills. The price situation is strong. As far as sales by supply houses are concerned, quotations are stronger. Seamless tubes are active, more orders coming through for attractive tonnages.

Demand for wrought iron pipe is showing improvement. New business in the past year exceeds buying of 1924 and the 1925 total will run about 25 per cent in excess of last year. For the fiscal year ended Sept. 30, the A. M. Byers Co. reports an increase in orders received over 1923 of between two and three per cent, and an increase over 1924 of approximately 20 per cent. September, 1925, shipments were about 14 per cent over 1923 and about 11 per cent over those in 1924.

New York, Oct. 27.—The market on cast pipe continues strong, with virtually all makers booked ahead at least two months, upon the smaller sizes. Prices are unchanged. A leading award involved 3000 tons of 24 and 30-inch pipe for Baltimore, this business going to the Warren Foundry & Pipe Co. An injunction has been brought against the water department in New York to set aside the award of 3000 tons, on which German makers were low, the bulk of the order being divided equally between R. D. Mead & Co. and Warren Foundry & Pipe Co.

Chicago, Oct. 27.—Cast iron pipe makers are booked through the first week of December on the average, on principal sizes. Bookings still are about equal to shipments but have tapered off somewhat. The market continues at $49.20 to $50.20, Chicago, on pipe 6-inch and over, with this level a shade weaker. Four-inch pipe is quoted at $53.20 to $54.20, Chicago.

Boston, Oct. 27.—Private sales of cast iron pipe have improved. Small gas companies in outlying districts are the chief buyers. The total placed at Boston during the week has been close to 3000 tons. Concessions of about $1 a ton are being made on 24-inch and larger sizes.

CONTRACTS PLACED

3000 tons, 24 to 30-inch pipe for Baltimore, to the Warren Foundry & Pipe Co.
190 tons, pipe for Weyerhaeuser Timber Co., Tacoma, Wash., to American Cast Iron Pipe Co.

CONTRACTS PENDING

400 tons, Newark, N. J., bids asked.

Bolts, Nuts, Rivets

Good Demand and Firm Prices Keep Operations Steady

NUT AND BOLT PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Railroads, the automotive and other industries are fairly active in purchases of bolts and nuts and are specifying freely against contracts. Operations average around 65 or 70 per cent. Prices hold firmly at 50, 10 and 10 off on large machine bolts. Rivet sales still are scattered and with manufacturers needing business, some concessions are inevitable. The market generally is quoted at

2.40c on structural rivets, one or two stating that their nominal figure is 2.50c. Small rivets are more in demand than a few weeks ago and the discount is unchanged at 70, 10 and 5 off.

Wrought washers are not active except in less-than-carload quantities. On an inquiry for carload, $6.25 off list probably would be quoted.

Chicago, Oct. 27.—Good demand for bolts and nuts is being maintained by the high rate of activity in the automotive and implement industries. Demand for stove bolts is not as good as usual. Western mill operations continue about 70 per cent. Prices are unchanged on the basis of 50, 10 and 10 off for large machine bolts.

Cleveland, Oct. 27.—The leading rivet interest here, effective today, is eliminating all quotations lower than 2.60c, base Pittsburgh, and is standing firmly at this level. Other makers still are naming 2.50c or under. Specifications are reported better and more orders are being booked. Nuts and bolts are firm and demand is good. Some plants are operating at 85 per cent of capacity or better.

Hexagon and square head cap screws, both milled and upset, have all been marked up 5 points.

Iron Ore

Shipping Season Near Close—Sales Small—Some Mines Down

Cleveland, Oct. 27.—The Lake Superior iron ore shipping season is coming to a close, with the leading interest and independents planning on withdrawing boats from the trade Nov. 15 to Nov. 20. Adverse weather conditions in the Northwest have led some operators to shut down mines earlier than expected. Shipments so far this month are about even with those of September, and the total for October will be around 7,000,000 tons. A few small sales for filling in purposes are noted. Some producers anticipate higher prices for ore next spring. Stocks have been greatly reduced.

Philadelphia, Oct. 27.—The Cranberry Furnace Co. recently ordered substantial tonnages of Spanish and Moroccan low phosphorus ore for use with domestic ore in making copper-free, low phosphorus iron.

New York, Oct. 27.—About 85,000 tons of Port Henry iron ores and sinter was sold recently for shipment in the next three or four months to eastern furnaces.

Chile Buys Locomotives

Washington, Oct. 27.—Chile was the largest importer of American electric locomotives in September, taking eight, according to reports to the department of commerce. Mexico took three, Japan two and Cuba one. Canada purchased ten steam and three gasoline engines and Japan four gasoline and one steam. Cuba took four steam locomotives, Dominion Republic three, Colombia two and Dutch Guiana and Venezuela one each.

Bars

Buying for Stock Being Done As Price Seems Firm—Deliveries Fall Back

BAR makers now are naming six to eight weeks delivery on current bookings, though some smaller mills still are able to handle small lots promptly. Orders continue to come to mills as consumers and jobbers have begun to buy for stock, considering the present price advantageous. Continued activity in automotive consumption when a lull has been expected adds to demand.

BAR PRICES, PAGE 1102

Chicago, Oct. 27.—Deliveries on soft steel bars are becoming more extended, on some sizes as much as six to eight weeks. Most buying is for current requirements, but many users regard 2.10c, Chicago, as attractive for stock. Implement makers are taking bars equal to the best fourth quarter for five years. The automotive industry is taking more material than in preceding months. New business is easily 30 per cent ahead of shipments.

Bar iron is feeling this improvement in a moderate degree, with the price unchanged at 1.90c, Chicago. Double turn operations still govern at rail steel mills, principally due to demand for building bars. Rail steel is quoted at 2.00c to 2.10c, Chicago.

Boston, Oct. 27.—More than 3000 tons of soft steel bars were placed at Boston during the week at 2.00c Pittsburgh or 2.365c delivered. Inquiry is active. Demand for tool steel is reported more urgent than at any time in many weeks.

Philadelphia, Oct. 27.—The recent heavy demand for steel bars has not been maintained and as for new business the market is quiet. The quotation remains at 1.90c to 2.00c, Pittsburgh.

Pittsburgh, Oct. 27.—Specifications for merchant steel bars are filling mill order books. Although various consuming lines are represented, cold-finished makers' needs appear to lead. Jobbers are large buyers. Everybody is trying to accumulate stocks because consumption is so high and mill deliveries are six to eight weeks deferred with some mills. The Carnegie Steel Co. is naming those dates on some sizes, and efforts are being made to place orders among independents for earlier delivery. There is a heavy demand for shafting sizes. The 2.00c price is firmer than in weeks. One user who contracted for 4000 or 5000 tons for last quarter, already has specified practically all this tonnage. An effort to double the tonnage at 1.90c failed. An alloy bar user has contracted for its fourth quarter requirements $2 above the third quarter price.

Refined iron bar makers are busier with growing order books. Demand is increasing from railroad car and locomotive builders. Prices start at 3.00c.

Cleveland, Oct. 27.—A surprising tonnage continues to be produced by the bar market each week. This is coming from many sources and some of the lots included are very substantial. Deliveries keep on receding and in some sizes have fallen back considerably. Reports from Detroit are that November tonnage from automobile builders for December production is expected to show a normal reduction. Steel bar prices are firm at 2.19c, Cleveland or 2.00c, Pittsburgh.

Cold Finished Steel

Producers Operate Full Time but Deliveries Fall Back

Pittsburgh, Oct. 27.—Some cold finishers are operating day and night in an effort to meet deliveries. Because of slow deliveries from hot mills, in some cases as far ahead as the last half of December, cold finishers are promising six to eight weeks delivery on some sizes. October will be at least 50 per cent better than September in specifications for a number of finishers, which will make it a better month than any since December, 1923. The 2.40c price leaves much to be desired since it permits little profit.

Hoops and Bands

Heavy Demand From All But Cooperage Users Stimulates Production

HOOP PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Buying by consumers of hoops and bands other than barrel and keg makers still is high. Automotive industries, stamping companies and other users are buying well and jobbers are active purchasers. Hot strip mills are operating hoop and band departments full and while much is being billed at the old price, 2.50c is being obtained on new orders.

L. W. Wallace, vice chairman of Secretary of Commerce Hoover's committee on elimination of waste in industry presented an address, "Wastes in Distribution," at a joint dinner of the New Britain, Meriden and Hartford branches of the American Society of Mechanical Engineers at Meriden, Conn., Oct. 21.

Structural Shapes

New York Office Building Takes 20,000 Tons —Chicago October Awards Setting Record —New Work Eases Off

STRUCTURAL activity this week is featured by the award of 20,000 tons for a New York office building, the contract going to McClintic-Marshall Co. Lettings in the Chicago district are setting new records for October. An athletic club there took 3950 tons and depots for the Illinois Central 3000 tons. Inquiries are beginning to ease off but a heavy tonnage still is pending. Two bridges at Pittsburgh, taking 19,000 tons, are scheduled for award next week. Mill deliveries are receding in the Chicago district and in the East Bethlehem is operating almost full. Outside of Chicago district the Middle West is dull.

Plain material prices are stiffening in the face of unusually heavy fall demand. Fabricated prices still reflect keen competition.

STRUCTURAL SHAPE PRICES, PAGE 1102

New York, Oct. 27.—Featuring the local structural market is the award of 20,000 tons for the Todd, Robertson & Todd office building at Forty-third and Lexington avenue. This is one of the largest contracts to be placed in many weeks. Both orders and inquiries continue brisk. Prices on fabricating material continue to stiffen, and while there is no change

Boston, Oct. 27.—Structural awards have eased off somewhat at Boston. The price of plain shapes is firm at 1.90c Pittsburgh and fabricating shops are well booked for balance of the year. Fabricated prices have advanced.

Philadelphia, Oct. 27.—Bethlehem Steel Co. seems the only eastern shape maker which is operating substantially full. The market has not developed any real strength and the usual range on plain material prices is 1.90c to 2.00c, Pittsburgh, and 2.00c to 2.10c, eastern mill. In some cases these prices are shaded several dollars a ton.

Pittsburgh, Oct. 27.—Specifications to mills on structural shapes from fabricators continue at a high rate but new work in sight appears to be falling off somewhat. Some fabricators have discharged their accumulated backlogs of business and do not see much in sight for replenishment. Next week two large bridge jobs are scheduled for letting, taking a total of approximately 19,000 tons. The plain material price of 2.00c is growing firmer although 1.90c still can be done on large tonnages.

Chicago, Oct. 27.—All records for structural steel awards for October are being shattered and fabricating shops are becoming well filled over the rest of the quarter. Competition remains probably keener than in any other finished steel line. Mill deliveries on plain material are receding rapidly. The quotation of 2.10c, Chicago, is becoming firmer. Plans are being prepared for two bridges over the Ohio and Mississippi rivers at Cairo, Ill. The bridges will have two levels and will cost about $10,000,000.

Cleveland, Oct. 27.—Activity in the local structural market is confined to small tonnages. Buying lacks marked improvement, although sentiment is better. Prices are unchanged, with few quotations being made. Plain material continues 2.19c Cleveland or 2.00c Pittsburgh with occasional 1.90c being done on the most attractive orders. It is reported that McClintic-Marshall Co. is contractor for the proposed Detroit-Windsor bridge, to cost about $16,000,000 and to have a 1900-foot span.

Awards Compared

	Tons
Awards this week	47,599
Awards last week	25,861
Awards two weeks ago	35,181
Awards this week in 1924	33,242
Average weekly awards, Sept.	29,696
Average weekly awards, 1925	32,879

CONTRACTS PLACED

20,000 tons, office building for Todd, Robertson & Todd, Forty-third street and Lexington avenue, New York, to the McClintic-Marshall Co.

3950 tons, Lake Shore Athletic club, Chicago, to McClintic-Marshall Co. Hegeman-Harris Co., 431 North Michigan avenue, Chicago, general contractor.

2500 tons, office Sixth avenue and Thirty-first street, New York, to the Harris Structural Steel Co.; Lanzner & Baer, owners.

2200 tons, ventilating building, vehicular tunnel, Jersey City, N. J., to Phoenix Bridge Co.; De Rise Contracting Co., that city, general contractor.

1586 tons, six bridges for South Park commission, Chicago, to American Bridge Co. Avery Brundage, 110 South Dearborn street, Chicago, general contractor.

1500 tons, Illinois Central railroad passenger station, Jackson, Miss., to Virginia Bridge & Iron Co.

1500 tons, Illinois Central railroad viaduct at Memphis, Tenn., to Virginia Bridge & Iron Co.

1300 tons, Bloom & Bloom apartment, Ninety-third street and West End avenue, New York, to A. E. Norton, Inc.

1300 tons, 20-story apartment hotel, West Eighty-sixth street, New York, to A. E. Norton, Inc.

1100 tons, Aronson building on Fourth street, San Francisco, to Pacific Rolling Mill Co.

800 tons, Lester M. Freedman, apartment, 203 West 106th New York, to unnamed fabricator.

625 tons, apartment building for George W. Harvey Co. in the South for fabrication and delivery in Boston, to New England Structural Co.

600 tons, building for Indian Refining Co., Memphis, Tenn., to American Car & Foundry Co.

600 tons, viaduct at Milwaukee, to Wisconsin Bridge Co.

600 tons, apartment, Ninety-third street, New York, to A. E. Norton, Inc.

500 to 600 tons, 8-story Skinner store and theater building, Seattle, through Teufel & Carlson, general contractors, to Pacific Coast Steel Co.

540 tons, Union Pacific railroad bridges, to McClintic-Marshall Co.

500 tons, addition to Dodge Mfg. Co., Mishawaka, Ind., to Joseph T. Ryerson & Son, Inc.

500 tons, government filtration plant, Washington, D. C., to an unnamed fabricator.

500 tons, apartment for the Lion Brewery Co., Fifth avenue and Eightieth street, New York, to the New York Ship Building Co.

471 tons, operating tables and racks for Jewelers' building garage, Chicago, to Joseph T. Ryerson & Son, Inc.

460 tons, chemical building addition, Standard Sanitary Mfg. Co., New Brighton, Pa. through the B. A. Groah Construction Co., general contractor, to the Fort Pitt Bridge Works.

432 tons, Everett Pulp & Paper Co. building, Everett, Wash., to Minneapolis Steel & Machinery Co.

400 tons, transmission towers for the American Gas & Electric Co., South Bend, Ind., to the American Bridge Co.

375 tons, mill buildings for the Conemaugh Iron Works, Blairsville, Pa., to the Pittsburgh-Des Moines Steel Co.

319 tons, plant for Everett Pulp & Paper Co., Everett, Wash., to Wallace Equipment Co.

310 tons, foundry addition to Saginaw Products Co., Saginaw, Mich., to Austin Co.

300 tons, car barns, Waterbury, Conn., to the American Bridge Co.

300 tons, building for the New York and Pennsylvania Co., Lock Haven, Pa., to the Belmont Iron Works.

300 tons, Metropolitan building, Bellingham, Wash.; to Wallace Equipment Co.

250 tons, bridge for Chesapeake & Ohio railroad, at Covington, Ky., to an unnamed fabricator.

200 tons, Portland Masonic Temple, Portland, Oreg., to unnamed interest.

196 tons, apartment, Green and Buchanan streets, San Francisco, to Schrader Iron Works, Inc.

150 tons, addition to Pomerene hall, Ohio State university, Columbus, O., to International Derrick & Equipment Co.

135 tons, Washougal bridge, State of Washington, to Pacific Iron Works of Portland.

125 tons, 2-story garage building for Union Stock Yards Co., Omaha, Neb., to Paxton & Vierling Iron Works.

125 tons, loading platform, Chevrolet Motor Car Co., Norwood, O., to L. Schreiber & Sons Co.

100 tons, clarifier bridges for north side sewage disposal plant, Niles Center, Ill., to Continental Bridge Co.

100 tons, garage building for the Bell Telephone Co., Pittsburgh, to the Guibert Steel Co.

100 tons, Bellevue Methodist church, to the McClintic-Marshall Co.

Tonnage unstated, mill at Camas, Wash., for Crown-Willamette Paper Co., to Poole & McGonigle.

Tonnage unstated, plant addition for Powell River Paper Co., Powell River, B. C., through Armstrong & Co., Vancouver, B. C., general contractors, to Vulcan Iron Works.

CONTRACTS PENDING

4500 tons, exposition building, Philadelphia; bids asked.

4500 tons, viaduct in connection with Hudson river vehicular tunnel, Jersey City; bids asked.

1800 tons, hospital for the Johns Hopkins university, Baltimore; pending.
1500 tons, Walter Mason office building, 19 West Thirty-seventh street, New York; pending.
400 tons, theatre, Twelfth street and Second avenue, New York; panding.
1000 tons, school No. 63, Queens, Long Island, N. Y.; pending.
1000 tons, Continental Oil Co. building, Denver; pending.
875 tons, field house for University of Chicago. New plans shortly by Holabird & Roche, 104 South Michigan avenue, Chicago.
750 tons, Union high school, Knoxville, Pa.; bids about to be asked.
700 tons, Quigley building, Salt Lake City, Utah; pending.
500 tons, addition to Fisk street station of Commonwealth Edison Co., Chicago; pending.
500 tons, theater building, Sixth avenue and Fifty-fourth street, New York; pending. James Stewart & Co., 30 Church street, general contractors in charge.
500 tons, Cranleigh hospital, 159 East Ninetieth street, New York; pending.
400 tons, grade elimination for the New York Central Newburgh, N. Y.; bids asked.
350 tons, building for the Universal Steel Co., Bridgeville, Pa.; bids about to be asked.
300 tons, building for the Washington Trust Co., Washington, Pa.; bids being taken.
300 tons, Pennsylvania bridge in Ohio; pending.
300 tons, Reading bridge in Pennsylvania; pending.
200 tons, theater, California and Fillmore streets, San Francisco; bids in.
200 tons, hospital, Long Beach, Long Island, N. Y.; pending.
175 tons, hotel, Page and Franklin streets, San Francisco; bids being received.
100 tons, addition to state asylum at Steilacoom, Wash.; pending.
100 tons, Grover Cleveland school, Seattle; pending.
100 tons, apartment building for the Hamilton Improvement Co., Pittsburgh; bids being taken.
100 tons, store and office building at Washington, Pa.; bids being taken.
100 tons, addition to Harlem hospital, New York; pending.
Tonnage unstated, 21-story Morton office building, Chicago. Plans shortly by Graham, Anderson, Probst & White, 80 East Jackson boulevard, Chicago.
Tonnage unstated, 6-story top addition to Chicago Athletic Association building, Chicago. Plans by Schmidt, Garden & Martin, 104 South Michigan avenue, Chicago.
Tonnage unstated, municipal court house, Bronx, New York; pending.
Pennsylvania railroad, near Second avenue, Pittsburgh, to the Truscon Steel Co.
200 tons, warehouse for Central Cold Storage Co., Peoria, Ill., to Hugh J. Baker & Co.
125 tons, bridge at Waterbury, Conn., to Joseph T. Ryerson & Son, Inc.
125 tons footing for American Laundry Machinery Co., Norwood, O.; to Pollak Steel Co.
100 tons, incinerator plant, Brooklyn, N. Y., to Truscon Steel Co.
100 tons, building for United Dye Works, Lodi, N. J., to Joseph T. Ryerson & Son, Inc.
100 tons, Ziebar Realty Co. building, Long Island City, New York, to Joseph T. Ryerson & Son, Inc.
100 tons, hospital at Freeport, Ill., to Concrete Steel Co.
100 tons, garage for Statler Garage Corp., 2415 North Clark street, Chicago, to Calumet Steel Co.
100 tons, Heintz Mfg. Co. building, Philadelphia, to Davis Bros.
100 tons, Masonic Temple, Atlantic City, N. J., to American Steel Engineering Co.
100 tons, Ridley creek bridge, Chester, Pa., to Kalman Steel Co.
Tonnage unstated, Mohegan Tube Co. building, Brooklyn, N. Y., to Buffalo Steel Co.
Tonnage unstated. Hazzard Mfg. Co. building, Wilkes Barre, Pa., to Buffalo Steel Co.
Tonnage unstated, school, Hammonton, N. J., to Truscon Steel Co.

Concrete Bars

Small Tonnage Demand Continues Active But Buying Has Narrowed

BUYING of concrete reinforcing bars has narrowed and tonnage going to makers' books has dropped slightly. Small lot awards continue numerous. The largest letting of the week involved 2500 tons for waterfront development in Chicago. Prices continue steady with stiffening in some cities. Road work is about completed for the current year.

REINFORCING BAR PRICES, PAGE 1102

Chicago, Oct. 27.—Reinforcing bar warehouses already have shipped more bars this year than in all of 1924. The Kalman Steel Co. is taking 2500 tons additional for the South Water street improvement, much of this being in mill lengths. The Chicago board of education again is specifying new billet bars and has 450 tons pending for three schools. Chicago warehouse quotations are unchanged at 2.60c for billet bars and 2.00 to 2.10c for rail steel bars.

Boston, Oct. 27.—Concrete bar prices are firmer, and work in sight for winter and early spring is exceptionally encouraging. Recent awards have been nearly all small. The Boston warehouse price is 3.00c.

Buffalo, Oct. 27.—Small lots of reinforcing bars are moving freely for construction work. Road building demand is over for this season. Prices are 2.265c for bars from mills and 2.65c for stock bars.

Pittsburgh, Oct. 27.—A large number of reinforcing concrete bar jobs here involve few tons each. The encouraging factor in these small jobs is that the prices being obtained are better than during the summer. Prices have firmed and 2.00c appears to be the mill minimum.

Cleveland, Oct. 27.—Small lots continue to form most of the activity in the local concrete bar market. Several good sized tonnages are pending. Bids go in Oct. 28 on 2500 tons for the Willow filtration plant. New billet bars continue 2.00c Pittsburgh to 2.20c, Cleveland. Where 1.75c mill recently was done on very attractive lots of rail steel 1.80c now is minimum.

Awards Compared

	Tons
Awards this week	8,940
Awards last week	5,401
Awards two weeks ago	8,230
Awards this week in 1924	1,790
Average weekly awards, Sept.	5,463
Average weekly awards, 1925	6,203

CONTRACTS PLACED

2500 tons, additional sections of South Water street improvement, Chicago, to Kalman Steel Co.; Mid-Continent Construction Co., 6 North Michigan avenue, Chicago, general contractor.
1600 tons, New England Confectionery plant, Cambridge, Mass., to Tucker Steel Co.
1000 tons, Harbour Trust building, Boston, to Barker Steel Co., James Stewart, general contractor.
900 tons, apartment building at Stoney Island avenue and Fifty-eighth street, Chicago, to Inland Steel Co.
700 tons, Bayuk warehouse, Philadelphia, to Lewis N. Lukens.
320 tons, Dreyfuss building, Rosebank, Staten Island, N. Y., to Jones & Laughlin Steel Corp. Turner Construction Co. general contractor.
250 tons, building for Starck Piano Co., Chicago, to Kalman Steel Co.
220 tons, school, Atlantic City, N. J., to American Steel Engineering Co.
200 tons, Ray warehouse, Panhandle division, Pennsylvania railroad, near Second avenue, Pittsburgh, to the Truscon Steel Co.

CONTRACTS PENDING

100 tons, building for the Washington Trust Co., Washington, Pa.; bids being taken.
100 tons, apartment building for the Hamilton Improvement Co., Pittsburgh; bids being taken.
Tonnage unstated, Thorne memorial auditorium for Northwestern university, Chicago. James Gamble Rogers, 367 Lexington avenue, New York, architects. Bids about Dec. 1.
Tonnage unstated, Mid-west club, Chicago. Plans shortly by Michaelson & Roganstad, 3815 West Congress street, Chicago.
Tonnage unstated, industrial school, York, Pa.; pending.

Nov. 1 Set for Adoption of New Quoting Basis

New York, Oct. 27.—Members of the Structural Steel Board of Trade Inc., representing virtually all fabricators operating in the eastern metropolitan district, are prepared to launch on Nov. 1, their adopted policy of quoting on a lump sum basis. The final step in this preparation came recently in the announcement of a plan proposed by a committee of six, consisting of three engineers and three contractors. Briefly, this plan demands that all specifications show a complete design, with sizes, sections and the relative location of the various members, with floor levels, column centers and offsets figured, and shall also show the character of the work to be performed. Plans are to be made to scale of not less than ⅛-inch to the foot.

Wind bracing and special details when required must be shown in sufficient detail regarding rivets and construction to permit an accurate estimate. The specifications must definitely enumerate all items included in the estimate, and in all respects not covered by the specifications, the code of standard practice of the American Institute of Steel Construction must govern. Inspection must be called for in the specifications under "Inspection"; the amount of money to be included must be specified, and the inspector appointed by the engineer.

Rails, Cars

Chicago Makers Figuring 12,000 Cars—New York Central Buys 206,745 Tons of Rails

NEW York Central featured the rail market this week, closing on 206,745 tons of rails. Chicago makers are figuring 12,000 cars, of which 4000 by the Frisco and 3000 by Missouri Pacific are expected to be closed this week. New York Central added 1000 to its pending list. Missouri Pacific is distributing 40,000 tons of rails, and Southern has closed on 45,200 tons.

RAILROAD TRACK MATERIAL PRICES, PAGE 1102

New York, Oct. 27.—Railroad activity in the East is featured by the award of 206,745 tons of rails by the New York Central. This tonnage was allocated as follows: Bethlehem Steel Co., 88,500 tons, Illinois Steel Co., 80,445 tons, Carnegie Steel Co., 18,800 tons, Inland Steel Co., 19,000 tons. Of the total, 155,000 tons is released for prompt shipment, and the remainder optioned subject to future specifications.

Rolling stock equipment buying is light, falling off somewhat from the volume of the past two or three weeks. Inquiry is restricted to small, scattered lots. Following recent heavy buying of locomotives, this business also has slowed down. The only feature is the placing of 25 electric mine engines by the Soviet government of Russia, through its representative the Amtorg Trading Corp., 165 Broadway. This business went to the Westinghouse Electric International Co. for manufacture by Westinghouse Electric & Mfg. Co.

The Baldwin Locomotive Works has booked five locomotives for the Central Railroad of Georgia and six for the Cuben Central railroad. Hocking Valley awarded ten locomotives to the Lima Locomotive Works, Inc.

Southern railroad has placed 45,200 tons of rails, of which 39,200 tons will be supplied by the Tennessee Coal, Iron & Railroad Co., 4000 tons by the Bethlehem Steel Co. and 2000 tons by the Inland Steel Co.

Philadelphia, Oct. 27.—Pennsylvania railroad has purchased steel for its car repairs, 6000 cars being involved. It is understood that Carnegie Steel Co. has booked the plain material for the 3000 cars, to be repaired by Ralston Steel Car Co., 1000 by Standard Steel Car Co., and 500 by Greenville Steel Car Co.; Jones & Laughlin Steel Corp., the plain material for the 1000 repairs by Youngstown Steel Car Co., and Bethlehem that for the 500 repairs by Buffalo Steel Car Co. The cars involve an average of 10 tons each or a total of 60,000 tons.

Pittsburgh, Oct. 27.—Orders for light rails are growing more plentiful. One West Virginia coal interest bought seven carloads, the largest order of the past week or two. The 1.60c figure is strong as a minimum and an advance from that level is in sight.
changed.

Chicago, Oct. 27.—Actual track material placements have been light the past few days, although roads not yet committing themselves for their 1926 requirements are nearing that point. The Missouri Pacific is distributing 40,000 tons of rails among western mills, with the Texas & Pacific a prospective buyer of 25,000 tons and the Nashville, Chattanooga & St. Louis of 8500. Bethlehem, Tennessee and Colorado Fuel & Iron are expected to share in the Santa Fe distribution of 75,000 to 100,000 tons. Wabash railroad is inquiring for 15,000 tons of 90-pound rails.

The New York Central has added 1000 steel gondolas to its inquiry for 1000 box cars and probably will be in the market for stock cars shortly. This makes about 12,000 cars pending in this district, of which the 4000 Frisco and 3000 Missouri Pacific orders may be placed this week.

Ottawa, Ont., Oct. 26.—Canadian National railways have purchased 35,000 tons of rails and the Canadian Pacific 18,000 tons from the British Empire Steel Corp., Ltd. Bookings of wheels, tie plates and other accessories have been made.

ORDERS PLACED

Chesapeake & Ohio, four air dump cars, to the Case Crane & Engineering Co., and three mail cars to Bethlehem Steel Co.
New York, New Haven & Hartford, four cars to American Tank Car Co.
Illinois Central, 200 stock cars, to General-American Tank Car Corp.

ORDERS PENDING

New York Central, 1000 55-ton steel gondolas; pending.
Sinclair Refining Co., 50 tank cars; bids asked.
South African Railways & Harbors, 50 hopper cars; bids asked.

Wire

Deliveries Delayed But Orders in Less Volume—Fence And Barbed Wire Slack

UNIFORM conditions are lacking in wire and its products. Manufacturing wire demands have bene beyond the ability of producers to keep deliveries prompt. Nail orders are in much less volume than during the summer and in fencing and barbed wire the lack of new business is marked. Prices are firm and makers prefer to lose tonnage rather than shade the prevailing level.

WIRE PRICES, PAGE 1102

Pittsburgh, Oct. 27.—Some wire mills are behind on deliveries of manufacturing wire and orders have been heavy. Nail orders have been less, only a few carloads coming through each week. Lack of fencing and barbed wire business is causing the wire industry to trail other finished steel lines in operations. The average wire mill operation is about 60 or 65 per cent. Prices are firming somewhat and the tendency among makers here is to refuse business rather than shade 2.50c and 2.65c on wire and wire nails, respectively.

Boston, Oct. 27.—Inquiry and sales of wire nails show marked improvement following a long period of dullness. Wire sales have been heavy and include one order of 400 tons at 2.65c Worcester.

Chicago, Oct. 27.—One maker of wire and wire products expects the present level of 2.55c, Chicago and western mill, for plain wire and 2.70c for wire nails to hold through fourth quarter. That some buyers may pay more as the quarter closes is predicted. Demand is sufficient for 60 to 70 per cent mill operation, with jobbing and manufacturing lines manifesting continued slight improvement.

Forms To Store Liquids

Pittsburgh, Oct. 27.—General American Tank Car Corp., has incorporated a subsidiary known as the General American Tank Storage & Terminal Co., to provide bonded warehouse storage for, to finance and to facilitate the loadings and unloading of liquids in connection with the company's tank car service. This is a new departure for the corporation and will inaugurate the establishment of a system of plants for tank storage in bulk at seaboard points for liquids moving in the export and import trade, such as petroleum products of all kinds, vegetable oils coming from the Orient, molasses from Cuba, etc. The first plant in this system has been established at New Orleans, where storage capacity for 20,000,000 gallons of liquids is being provided.

Nonferrous Metals

Firm Tone Prevails in Metals and Prices Stronger—Zinc Continues Market Leader—Aluminum Quotations Advanced

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Tin. N. Y. Straits	New York Lead	Lead St. Louis	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
	Cents per pound									
Oct. 21	14.50	14.62½	13.75	62.75	9.60	9.30	8.45	27.00	18.00	34.00
Oct. 22	14.57½	14.70	13.75	63.75	9.60	9.30	8.60	27.00	18.10	34.00
Oct. 23	14.62½	14.75	13.80	64.00	9.60	9.30	8.65	28.00	18.50	34.00
Oct. 26	14.65	14.80	13.85	63.12½	9.60	9.35	8.65	28.00	18.75	34.00
Oct. 27	14.72½	14.83¾	13.87½	63.62½	9.60	9.35	8.62½	28.00	19.00	34.00

NEW YORK, Oct. 27.—Prices of nearly all the nonferrous metals have gone up in the past week, with an especially strong market in zinc. Aluminum, the most steady of the metals, unchanged for more than a year, joined the procession with an increase of 1 cent a pound, to 28.00c and 29.00c for the principal commercial grades.

Active buying by users, better export markets, and extremely small stocks of metals, are conditions that cause the advances. With the metal markets in sound condition and the business outlook good, users are venturing a little farther into the future in some metals than they have lately. Brass and copper rolling mill products, unchanged since early in August on the basis of official published prices, were marked up ¼ cent Monday, but in these materials and in the copper market, buying is mostly for the usual 90-day period. The increase in brass products was caused by the strength in zinc as well as by better business and recovery in copper.

Zinc.—Urgent demand for prompt shipment following strength caused by larger export buying and small stocks, sent the zinc price up nearly ½ cent in less than two weeks. With stocks of metal practically non-existent at smelting plants, prompt shipment sold at 8.70c E. St. Louis, and then with this kind of need apparently about satisfied and the market appearing to be whatever the buyers were willing to pay, galvanizers extended their interest farther ahead, the first time in many months, after they had been caught short, and January sold as high as 8.60c, December was about the same and November five points higher. Smelters now have little prime western to offer for the latter month, while in brass special and high grade they are well booked over the rest of the year. Zinc sheets have been advanced to 11.75c base.

Tin.—Not a great deal of buying has been done by users in the past week or two but the market has been strong because visible supplies are limited and shipments appear to be well taken. Much metal has been going to the automobile industry, in the form of solder, in addition to a large steady tin plate business.

Copper.—The red metal has been fluctuating in a narrow range lately, and now is swinging toward the firmer position, with buying a little more active and shipments continuing large, but the exports still lag behind the business of early this year. When the latter will be resumed on a big scale is the question on which the trend of prices hitches.

Lead.—Buying of lead is more active again and prices are strong, with premiums for prompt shipment but a short period ahead and sales are mostly at 9.25c E. St. Louis.

Prof. C. A. Adams, director of the American Bureau of Welding, recently appointed a small executive committee to form a nucleus of a larger gas welding research committee. S. W. Miller was chosen as the chairman of the body, which held a meeting in New York early in October. At that time several important problems of the industry were selected to be assigned to appropriate sections of the country.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.37½
Copper, hot rolled	23.00
Zinc, ga. 9 to 17	11.75
Lead full sheets (cut ¼c more)	13.25 to 13.75
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	24.00
Copper	25.00
RODS	
High brass (round ⅝ to 2½-inch)	17.12½
Naval brass	19.87½
WIRE	
Copper	16.37½ to 16.62½
High brass	19.87½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00 to 9.25
Chicago	9.50 to 9.75
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
New York	7.00 to 7.25
Chicago	8.25 to 8.50
Cleveland	7.50 to 7.75
ZINC	
New York	5.25
Cleveland	4.50 to 5.00
HEAVY COPPER AND WIRE	
New York	11.25 to 11.50
Chicago	11.50 to 11.75
Cleveland	11.50 to 11.75
RED BRASS TURNINGS	
New York	8.25 to 8.50
Chicago	8.75 to 9.25
Cleveland	8.25 to 9.00
YELLOW BRASS TUBING	
Cleveland	7.50 to 7.75
LIGHT COPPER	
New York	9.50 to 10.00
Chicago	10.50 to 10.75
Cleveland	9.75 to 10.00
LIGHT BRASS	
Chicago	7.50 to 8.00
Cleveland	6.00 to 6.25
ALUMINUM	
Borings, Cleveland	12.00 to 15.00
Old sheet and cast, Cleveland	17.00 to 20.00
Clippings, Cleveland	21.00 to 22.00

Secondary Metals

Remelt aluminum No. 12	25.00 to 25.50
Brass ingot 85-5-5-5	12.50

Coke By-Products

Distillates and Sulphate Firm — Benzol Demand Steady

New York, Oct. 27.—Light oil distillates are firm, with demand steady. On xylol and solvent naphtha deliveries are considerably deferred, but fairly prompt shipment of benzols can be obtained.

Pure benzol is quoted at 24 cents, works, in tanks, and 29 cents, in drums, and 90 per cent at 23 cents, in tanks, and 28 cents in drums. Xyol in tank lots is quoted at 26 cents works, and in drum lots 32 cents, works. Solvent naphtha and toluol are unchanged at 26 cents in tanks, and 31 cents in drums, and phenol at 22 cents works, in tank lots. This latter product may be had for less, in attractive quantity.

Strength characterizes sulphate of ammonia. While current demand is restricted, production is heavily taken up by contracts. Sulphate for domestic account is quoted $2.75 to $3, delivered. Naphthalene is dull but unchanged at 5½ to 6½ cents works, for flakes and 6½ to 7½ cents for balls.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.24	
Toluol	0.26	
Solvent naphtha	0.26	(nominal)
Commercial xylol	0.26	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.05½ to 0.06½	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½	0.06½ to 0.07½
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.97½	

Northwest Trade Slack

Most Heavy Contracts for Year Closed—Current Business Brings Fair Volume

SEATTLE, Oct. 22—With practically all large public contracts for the year awarded little new work of any consequence is to be placed during the winter.

The foundry business is slow, operations in this district probably being less than 50 per cent of capacity. Plants are well stocked with raw materials and buying is at a minimum. Consumers have not yet placed large orders for first quarter delivery. Some Columbia pig iron ordered months ago, is still being delivered. Little continental and British iron is now afloat for this territory although some coke is still en route. Prices are about the same, continental being quoted at $25. Tyneside coke is available at $14.

Bars, Plates and Shapes

Pacific Coast Steel Co. has reduced bars from 2.45c to 2.35c, placing the local market in line with eastern quotations. The Seattle plant is still operating two furnaces. Business continues in small tonnages but the aggregate is about the same as during the last 60 days. The Pacific Coast Steel Co. has been awarded 500 to 600 tons of steel for the new Skinner building, Seattle, and 200 tons for the Portland Masonic Temple have been awarded to an unnamed interest.

Plate and shape prices are holding their own on a basis of 2.30c and 2.35c respectively. The market is reasonably steady, nothing under those figures being reported. Demand for plate is restricted in this territory although a normal movement of light gages for repair, boiler and tank work is noted. There is more activity in shapes than in plates. The Everett Pulp & Paper Co. has awarded a total of 432 tons of shapes to the Minneapolis Steel & Machinery Co., covering two new units at the Everett plant. Wallace Equipment Co., Seattle, is working on contracts totaling about 4000 tons. Contracts pending include 100 tons for an addition to the state asylum at Steilacoom, 100 tons for the Grover Cleveland high school and 90 tons for the University Baptist church. Portland will open bids Nov. 4 for a steel span to ross Jefferson street canyon. The arch will be 250 feet in length. Poole & McGonigle, Portland, were awarded the contract land, were awarded the contract for the structural steel involved in the new mill at Camas, Wash., for the Crown-Willamette Paper Co. Vulcan Iron Works has obtained the contract, at a figure said to be about $40,000, for the steel for the framework of an additional unit to the plant of the Powell River Paper Co., Powell River, B. C. The addition will be 150 x 450 feet. The general contract is held by Armstrong & Co., of Vancouver, B. C.

Finished Materials

Wholesale jobbers report trade rather slow. The trade is buying out of stock but orders are in small tonnages. Sheets are in fair demand but other items are not moving in as large volume as a month ago.

Weyerhaeuser Timber Co., Tacoma, has placed an order for 190 tons of cast iron pipe with the American Cast Iron Pipe Co., through its Northwest agent, R. C. Polk, Seattle.

Old Materials

No. 1 cast iron scrap is in poor demand, sales being limited to less than carload lots. A. No. 1, cupola size, is quoted at $16.50 net ton. Steel scrap is unchanged as to price although the situation is a trifle firmer as the main buying interest is less discriminating in its selection, quotations being $10.50 and $11 gross ton.

Results Shown

Of Sheet Simplifications by Report of Board of Review

The sheet steel simplification board of review, of which Walter C. Carroll, Inland Steel Co., Chicago, is chairman, met at Atlantic City, Oct. 22, to review the situation, since the May meeting, created by adoption of the simplification schedule. The board submitted the following report which was adopted to the metals branch of the National Hardware association of the United States:

"Your committee attaches much importance to the unfortunate conditions which have dominated the sheet steel industry during the past nine months and recognizes the influence which these conditions have had on the strict maintainance of the roofing portion of the simplification schedule.

"It should be understood that the flat sheet portion of the schedule has operated satisfactorily. Exceptions having been of a local and special character and only as to sizes.

"In certain sections of this big country of ours, the roofing portion of the schedule has, through constant educational effort become a reality, so far as the elimination of sheets lighter than No. 28 gage for roofing are concerned and your committee believes that this benefit to the entire industry will be permanent.

"Exceptions have been largely confined to isolated sections, where it is recognized that special conditions have retarded full adoption of the simplification program and we find that the demand for lighter sheets for roofing has been insistent. Your committee feels that because of the progress made with the flat portion of the schedule and the roofing portion in many of the important consuming territories of the United States that no backward step should be taken.

"In order that a constant check may be made by the board of review it is strongly urged that shipments of roofing be reported each month in terms of per cent as to the gages shipped. The figures should be sent by jobbers and manufacturing roofers to the secretary of the metal branch and by sheet mills to the secretary of the National Association of Sheet and Tin Plate Manufacturers for composite report distribution. Such monthly reports should serve as an incentive to everyone handling roofing to continue their best efforts to reduce the sale of sheets lighter than full No. 28 gage for roofing purposes. We desire to urge the adoption of nothing lighter than No. 29 gage full weight in those isolated sections where additional educational work is necessary."

Inland's Third Quarter Earnings Are Shown

The Inland Steel Co., Chicago, in its report for the third quarter, shows net profit after all charges and estimated federal taxes, of $1,189,235. Net earnings from operations, ofter administrative and maintenance expenses, were $1,794,078. In the previous quarter net earnings amounted to $1,230,813 and in the third quarter of last year to $2,355,946.

The Inland Steel Co. has just sold to New York bankers a $12,500,000 issue of 20-year gold debenture bonds. Proceeds will be used to reimburse the company for about $5,000,000 expended for expansions and to provide additional funds to complete expansion plans. These include the installation of blast furnace No. 4, the addition of 74 additional Koppers by-product coke ovens and the complete electrification of Indiana Harbor plant.

Canadian Output Gains

Toronto, Ont., Oct. 27.—Pig iron produced in Canada in September totaled 34,609 gross tons, an increase of 8096 tons or 31 per cent over the 26,513 tons made in August. The total tonnage for the nine months this year was 372,960 tons, against 518,860 tons last year.

Steel ingots and castings increased from 25,007 tons in August to 37,094 tons in September. For the nine months ending with September, the output of steel ingots and castings was 508,269 tons against 581,711 tons for 1924.

The Market Section

British Trade Outlook Brighter

Foreign Competition Is Being Checked, and More Blast Furnaces Resume—German Mills Sell 20,000 Tons of Steel Bars To Far East—India Inquiring for 9000 Railroad Cars

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Oct. 27.—(*By Radio*)—The outlook in the British iron and steel markets is slightly better. Lower British prices are checking foreign competition, although it still is keen. Pig iron stocks are being reduced, and two more blast furnaces have resumed.

Good orders for structural steel have been received in the week from South America, Bengal and Rhodesia. India is inquiring for 9000 railroad cars. Considerable improvement also is noted in the market for galvanized sheets and tin plate.

German mills have sold 20,000 tons of steel bars for delivery to the Far East. An increase in exports is reported by German interests, and French exports also are gaining.

British Welcome American Pig Iron Orders

BIRMINGHAM, Eng., Oct. 16.—(*European Staff Service*)—The arrival of substantial orders from America for pig iron has imparted a new firmness. The 20,000 ton order to Guest, Keen & Nettlefolds mentioned last week has proved merely an incident among a number of contracts fairly spread through the ironmaking districts on the seaboard. Lincolnshire, it now appears, has good orders on which shipments are being made through the port of Immingham, and on Tees-Side the orders booked, including 60,000 tons arranged through a well known firm of exporters, amount to 75,000 tons. Great Britain obviously can suit American requirements in the matter of quality. The iron ordered is of a special foundry quality, low in phosphorus, and it is understood local and imported ores will be employed. The effect has been immediate in increasing production.

Sterling $4.84

Recently the smelters have regulated their output to meet limited requirements, and stocks are not large.

Demand for hematite generally has improved, with the result that for east coast qualities an additional sixpense ($0.12) is quoted, making the price for mixed numbers £3 14s 6d ($18.02). No attempt has yet been made to increase other brands, but they are firmer, No. 3 Cleveland being at a minimum of £3 6s 6d ($16.09). In the Midlands, the Northampton makers are firm at £3 2s 6d ($15.12) for foundry iron and £3 5s ($15.73) for Derbyshire.

The latest figures of production present a curious contrast between steel and pig iron. The September output of steel ingots and castings was 638,900 tons which is 300 tons over the 1913 monthly average. It will be seen that the present keen competition for business is mainly due to the greatly enlarged capacity, estimated at something like 60 per cent introduced since the war. The pig iron figures for September were 448,700 tons, comparing with the 1913 monthly average of 855,000 tons. The wide disparity is, no doubt, partly due to the increased use of steel scrap. But the foreign trade in pig iron has been enormously affected by low foreign exchange values. The effect of the American business has been to stimulate home buying, which is now more confident than for a long time past, buyers and sellers being fairly in agreement that present prices are not likely to be reduced.

(*Concluded on Page* 1123)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, October 26	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable								
PIG IRON	£ s d			Francs		Francs	£ s d	
Foundry No. 3, Silicon 2.50-3.00	$16.13	3 6 6*	$14.55	340	$14.85	330	$16.08	3 10 0
Basic	15.76	3 5 0	14.77	345	14.63	325	15.04	3 2 0
Basic-bessemer	19.16	3 19 0†	14.55	340	14.40	320	16 98	3 10 0
Hematite, Phosphorus 0.02-0.05	17.95	3 14 0	22.33	475	.....	...	21.83	4 10 0
SEMIFINISHED STEEL								
Billets	$26.68	5 10 0	$20.97	4?0	$21.38	475	$26.68	5 10 0
Wire rods	44.86	9 5 0	28.68	670	27.68	615	29.10	6 0 0
FINISHED STEEL								
Standard rails	$36.38	7 10 0	$27.39	640	$26.10	580	$31.53	6 10 0
Merchant bars	1.57c	7 5 0	1.16c	610	1.14c	560	1.1?c	5 8 0
Structural shapes	1.46c	6 15 0	1.0?c	575	1.08c	530	1 16c	5 5 0
Plates, ship, bridge and tank	1.57c	7 5 0	1 30c	685	1.30c	635	1.38c	6 5 0
Sheets, black, 24 gage	2.22c	10 5 0	2.22c	1,170	2.18c	1.070	2.64c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.57c	16 10 0	3.28c	1,725	4.59c	2,250	3.6?c	16 15 0
Bands and strips	2.22c	10 5 0	1.52c	800	1.4?c	730	1.65c	7 10 0
Plain wire, base	2.38c	11 0 0	1.73c	910	1.63c	800	1.60c	7 5 0
Galvanized wire, base	3.03c	14 0 0	2.28c	1,200	2.24c	1,100	1.98c	9 0 0
Wire nails, base	3.14c	14 10 0	1.?0c	1,000	1.84c	?00	2.20c	10 0 0
Tin plate, base box 108 pounds	$ 4.79	0 19 9	.....	...	.....	...	$ 6.55	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.13	3 6 6	$14.77	345(2)	$15.08	335	$19.55	85
Basic pig iron	16.49	3 8 0	14.12	330(1)	15.08	335	20.24	88
Furnace coke	3.03	0 12 6	6.0?	142	5.53	125	5.52	24
Billets	25.46	5 15 0	18.83	440	22 05	4 0	27.60	120
Standard rails	1.73c	8 0 0	1.01c	530	1 07c	525	1 48c	142
Merchant bars	1.62c	7 10 0	1.11c	585	1.19c	585	1.35c	12?
Shapes	1.52c	7 0 0	1.00c	500	1.13c	555	1.36c	130
Plates, ship, bridge and tank	1.62c	7 10 0	1.69c	890	1.3?c	680	1.51c	145
Sheets, black, 24 gage	2.27c	10 10 0	2.30c	1,210	2.30c	1,125	2.50c	240
Sheets, galvanized 24 gage, corrugated	3.52c	16 5 0	3.28c	1,725	4.69c	2,300	3.65c	350
Plain wire	2.38c	11 0 0	1.73c	910	1.63c	800	1.56c	150
Bands and Strips	2.22c	10 5 0	1.33c	700	1.43c	700	1.59c	152

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 6d ($3.03) f. o. b. Ferromanganese £15 5s 0d ($73.96) f. o. b. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

October Sales To Better Those of September—Railroad Business Is Important Factor in Market—Automobile Industry Waits

REPORTS from various machine tool centers indicate that October sales will establish a total considerably better than that for September. The improved buying noted during the last half of the month seems to be well sustained. It is believed that the Norfolk & Western railroad, which recently asked for bids on 80 machines, will begin placing orders this week. Although no other large lists are pending, railroad buying is of considerable importance. Manufacturers of equipment are busy and are preparing for a heavy fall demand. Awaiting developments in the automotive industry, Studebaker Corp. has deferred action on $400,000 worth of equipment while Nash Motors Co. is reported to have made purchases to a total of $100,000. Crane buying lags.

New York, Oct. 27.—Recent improvement in machine tool buying is being maintained, and October is expected to show a substantial gain over September. Railroad buying, although including no large lists, features the market. New York Central closed on two presses to Manning, Maxwell & Moore, Inc., three engine lathes to another builder for West Albany, N. Y., shops, and a turret lathe to still another builder for Depew shops. Lackawanna railroad awarded four machines to Manning, Maxwell & Moore Inc., who also booked a large grinder for Pullman Car & Mfg. Co., and one for Illinois Steel Co., South Chicago, Ill. Other railroad buying includes a 62-inch boring and turning machine for Illinois Central; a 5-foot radial drill for Texas & Pacific and 600-ton wheel press for Florida East Coast, all going to Niles-Bement-Pond Co. Boston & Albany has closed on a shaper to a Cincinnati builder, and Florida East Coast on a universal flue cleaner.

Pittsburgh, Oct. 27.—Scattered inquiries and sales are on the increase, and the outlook is pleasing in the machine tool market here. Representative manufacturers are led through their dealers to expect good business for the fall and winter. Local dealers anticipate sharing liberally in the distribution of Norfolk & Western orders which it is thought will start this week. Westinghouse Electric & Mfg. Co. has commenced to purchase against recent appropriations, one dealer receiving orders for a milling machine and a universal cutter and tool grinder. Carnegie Steel Co. bought a motor-driven grinder for Youngstown, O. Another nearby manufacturer closed on a punch and shear, with an order for a second promised this week. Crane sales are few and far between although orders are expected momentarily from Carnegie Steel Co., Weirton Steel Co., Jones & Laughlin Steel Corp. and others. Pittsburgh Steel Co. bought one crane this past week.

Cleveland, Oct. 27.—Buying of machine tools continues in fair total in this territory and in practically all cases the October volume of business will better that of September, which also was a good month. Operations of manufacturers show improvement. Purchases of the automobile industry remain curtailed. All dealers report sales to consist of but one or two sales. Used tools are in good demand and are moving well. Even better buying is in sight for the fall.

Cincinnati, Oct. 27.—Users of machine tools are manifesting more interest in the market and builders are more optimistic as to the future. Several inquiries of consequence are pending, especially from the railroads. An encouraging feature of the market is the fact that buyers are closing on inquiries more rapidly. Niles Tool Works reports the sale of a 5-railroad, 90-inch journal lathe to the foot radial drill to Texas & Pacific Nickel Plate and a boring mill each to Illinois Steel Co. and Black & Clawson Co., Hamilton, O. Cincinnati Planer Co., G. A. Gray Co. and Cincinnati Milling Machine Co., booked several orders each. National Screen & Manufacturing Co., which recently purchased one of the Lunkenheimer Co. plants, is preparing a list for outfitting the plant. Used equipment business is better also.

Boston, Oct. 27.—Activity in shapers during the week here has stimulated an otherwise quiet market. Boston & Albany railroad closed on a shaper under negotiation for some time. Thomson Spot Welder Co., Lynn, Mass., also bought one as did New Departure Mfg. Co., Bristol, Conn. General Electric Co., Pittsfield, Mass., closed on six or seven tools. Other sales were mostly for single tools. Among the buyers were Electric Car Heater Co., New Haven, Conn., Crompton & Knowles Loom Works, Worcester, Mass., and Moore Drop Forging Co., Springfield, Mass. Inquiry for new tools shows some improvement but used tool sales dropped off abruptly.

Chicago, Oct. 27.—October is proving much better than September for most Chicago machinery sellers. Nash Motors Co., Kenosha, Wis., is reported to have closed on $100,000 of equipment, mostly crankshaft lathes. Studebaker Corp., South Bend, Ind., has placed two 36-inch planers but deferred action on nearly $400,000 in equipment pending determination of the trend in the automotive industry. Youngstown Sheet & Tube Co. has closed at Youngstown, O., for most of its recent list for Indiana Harbor, Ind. Palmer House, Chicago, has issued a list for a small machine shop in its new Chicago edifice. Bendix Brake Corp., South Bend, Ind., is doubling its equipment and will buy shortly. National Paper Container Co., Milwaukee, wants three used 18-inch lathes, two 8-foot and one 4-foot. Chicago is inquiring for a 15-inch lathe. Illinois Tool Works, Chicago, may augment its milling machine equipment. A. O. Smith Corp., Milwaukee, placed some special tools last week. The Chicago board of education has finally closed on its tool list for Carl Schurz high school.

CRANE ORDERS PLACED

22 jib cranes for Mobile & Ohio railroad, awarded through Dwight P. Robinson & Co., Inc., New York, to Whiting Corp.

10 1½-ton jib cranes and nine 1½-ton electric hoists for Bessemer Gas Engine Co., placed with H. D. Conkey & Co., through Page & Ludwick and Frank D. Chase, Inc.

Three 5-ton electric overhead cranes for Link-Belt Co., Chicago, to Shaw Electric Crane Co.

Three 3-ton single I-beam cranes for Ostrander-Seymour Co., Chicago, to H. D. Conkey & Co., through Page & Ludwick.

Two 10-ton, 3-motor lumber handling cranes for Sears Roebuck & Co., Chicago, to Milwaukee Electric Crane & Mfg. Co., through Page & Ludwick.

Two 2-ton single I-beam cranes and 1-ton bracket crane for Oxweld Railway Service Co., Chicago, to H. D. Conkey & Co., through Page & Ludwick.

Among the single awards were: 10-ton overhead crane for open-hearth building addition, Pittsburgh Steel Co., Monessen, Pa., to Cleveland Crane & Engineering Works; 25-ton gantry crane for Harrison, N. J., yards of Pennsylvania railroad, to Whiting Corp.; 5-ton electric crane for water works, Oil City, Pa., to Niles-Bement-Pond Co.; 35-ton electric overhead crane for Hudson Gas & Electric Co., Poughkeepsie, N. Y., to an unnamed builder. Following single awards were placed with H. D. Conkey & Co., through Page & Ludwick: 3-ton underhung traveling crane for Clarence C. Hahn, Springfield, Ill.; 1-ton underhung crane for Great Lakes Supply Co., Chicago; 2-ton underhung crane for Royal Steel Co., Chicago; 1½-ton jib crane for Manton & Smith Co., Chicago.

CRANE ORDERS PENDING

Large number of cranes for Andes Copper Co., and Chile Exploration Co.; expected closed shortly.

Group crane orders expected soon from Carnegie Steel Co., Homestead and elsewhere, Weirton Steel Co., Weirton, W. Va.; and Jones & Laughlin Steel Corp. Latter probably will buy one crane for coke oven addition at Hazelwood.

Steel Corporation

Earnings for First Three Quarters of 1925 Far Exceed 1924

Third quarter earnings of the United States Steel Corp., totaling $42,400,412, after deducting operating and maintenance expenses and estimated taxes, were considerably above the second quarter total of $40,624,221 and the third quarter of 1924 at $30,718,415. Earnings for the first nine months of 1925 totaled $132,907,625 as compared with $122,174,899 for the same period of 1924. After depreciation and sinking fund and other charges the net income for the third quarter or 1925 was $23,804,823 compared with $15,078,110 for the same period last year. A balance of $8,604,611 was added to surplus for the quarter just ended, whereas in the third quarter of 1924 a deficit of $122,102 was balanced. Further data on earnings follow:

	Third quarter 1925	Second quarter 1925	Third quarter 1924
July	13,918 513	14,027,700*	10,480,105
August	14,399 265	14,452,104*	10,107,685
September	14,092,634	14,154,902*	10,180,625
Total earnings after deducting operating and maintenance expenses and estimated taxes	42,400,412	40,624,221	30,718,415
Depreciation and reserve	11,233,089	11,362,150	10,853,513
Sinking fund	2,685 439	2,700,390	
Bond interest	4,407,654	4,456,863	
Interest and bond premium	269,407	215,814	4,786,792
Net income	23,804,823	21,889,004	15,078,110
Dividends Preferred	6,304,919	6,304,919	6,304,919
Common	6,353,781	6,353,781	6,353,781
Com. extra	2,541,512	2,541,512	2,541,512
Balance for surplus	8,604,611	6,688,792	**122,102
Total nine months' net income	$132,907,625		$122,174,899

*April, May and June in second quarter.
**deficit.

Malleable Castings Sales Continue Steady

Washington, Oct. 27.—Malleable castings production in September totaling 58,573 tons, reflects the steady demand of the past four months, according to returns to the department of commerce from 130 manufacturers. Totals for June, July, August and September have varied less than 2000 tons. Operations in September were at 51.3 per cent of capacity. Following are further comparisons:

1924	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
July	31,159**	28.4	30,200	109,855
August	36,727**	32.6	34,627	112,496
September	41,507**	36.9	48,129	112,349
October	50,066***	43.8	54,589	114,264
November	47,987**	42.5	48,866	113,011
December	58,773****50.9		46,541	115,474
1925				
January	66,367****57.6		61,140	115,179
February	60,220**	53.0	49,673	113,530
March	61,245**	53.5	56,481	114,506
April	62,962***	55.1	58,001	114,195
May	61,003***	53.9	50,594	113,260
June	58,881***	51.5	47,303	114,284
July	57,229**	50.2	56,933	114,144
August	56,829***	49.6	48,691	114,455
September	58,573	51.3	49,832	114,217

**Includes 4 plants reported idle.
***Includes 5 plants reported idle.
****Includes 6 plants reported idle.

India Increases Bounty

Washington, Oct. 27.—Word has been received here that the legislative assembly of British India has passed a measure granting additional bounty on steel produced in India of 12 rupees per ton up to a maximum of 6,000,000. The bounty is to continue until March 31, 1927, and 1,800,000 rupees must be paid before March 31, 1926.

Carl Hartmann, Green Bay, Wis., jobber of machinery, etc., has filed a personal petition in bankruptcy. His liabilities are given as $309,739, and assets as $312,918. The largest liabilities are notes endorsed for a number of Green Bay manufacturing companies in which he has been interested.

Bar Iron Mill Wages Are Unchanged

Puddlers' wages in mills represented by the Western Bar Iron association will be $11.13 per ton in November and December. This is the same as in September and October. Finishers will continue to receive wages 44½ per cent above base. At the bi-monthly settlement with the Amalgamated association in Youngstown Monday the average sales price of bar iron in the September-October period was 1.95c per pound, the same as in the two months preceding. The settlement is made as of the twentieth of the month. Following are further comparisons of average sales prices:

	1925	1924	1923	1922	1921
Jan-Feb.	2.05c	2.35c	2.25c	1.60c	2.80c
Mar.-April	2.05c	2.35c	2.35c	1.50c	2.35c
May-June	2.05c	2.25c	2.50c	1.60c	2.30c
July-Aug.	1.95c	2.15c	2.50c	1.70c	1.85c
Sept.-Oct.	1.95c	2.10c	3.40c	1.95c	1.70c
Nov.-Dec.	.....	.....	2.05c	2.35c	2.20c	1.65c
Yearly av.	.....	2.21c	2.30c	1.76c	2.14c

Pig Iron Prices Show Sharp Advances

(*Concluded from Page* 1104)

nage of basic this week brought out quotations of $19, valley. The McKinney Steel Co. has blown out its No. 3 furnace at Cleveland, which was on foundry oven, for relining.

About 5000 tons of low phosphorus iron has been sold by one maker recently, $28.50, valley, applying on some of this.

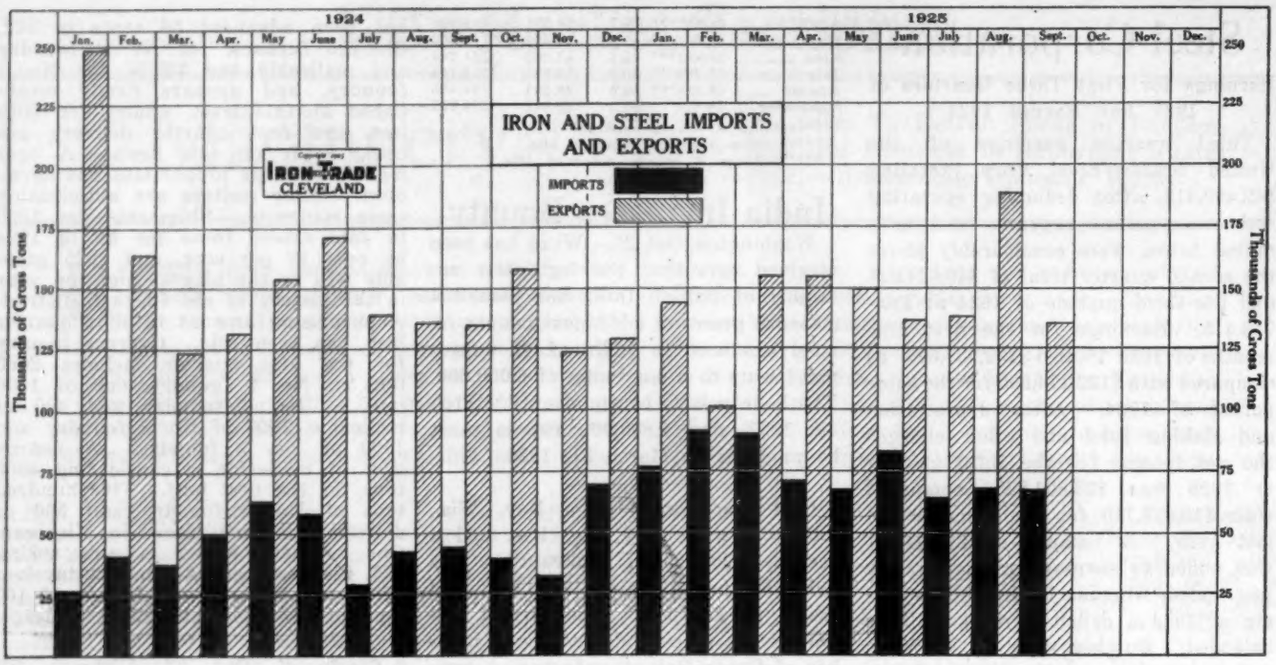
Youngstown, O., Oct. 27.—Steel interests have advanced prices of No. 2 foundry $1 a ton to a minimum of $20, valley.

Chicago, Oct. 27.—Northern iron has been advanced 50 cents to $22, Chicago furnace, for No. 2 foundry and malleable and $22.50 for No. 1 foundry, and appears firmly established at this level. Sales for both last and first quarter delivery are being made on this basis. A spot market of large proportions has developed. Many melters are anticipating their contracts. Shipments for 1925 to date exceed those for all of 1924 by over 10 per cent, and 1925 probably will be the biggest pig iron year in the history of the Chicago district. A surprising amount of first quarter iron has been sold. Current inquiry for the first quarter includes 2000 tons of No. 2 foundry, one of 1000 tons of No. 2 foundry and 400 of malleable, 1000 of No. 2 foundry and 1500 of No. 2 foundry. A nearby user of malleable is considering 4000 tons for the first half. Five hundred tons of No. 2 foundry and 500 of delivery has been placed in Michigan. One southern maker is now asking $21, Birmingham. An inquiry involves 300 tons of silveries. A sale of 100 tons of charcoal, at $29.04, Chicago, is reported.

Cincinnati, Oct. 27.—Virtually all furnaces in the southern Ohio group are sold up for the balance of the year. The minimum price is $20, Ironton, for fourth quarter, while a majority of the furnaces are quoting $20.50 for first quarter. Southern iron was quoted last week at $19 to $20 Birmingham with one Tennessee furnace interest at $19. Recent pig iron sales aggregate close to 20,000 tons. Standard Sanitary Mfg. Co., bought 7000 tons of northern iron for its Louisville Ky., plant, while the Cadillac Motor Car Co., Detroit Mich., closed for 1000 tons of 8 to 9 per cent silvery for first quarter. The Lunkenheimer Co., Cincinnati is in the market for 700 tons of northern foundry for first quarter.

St. Louis, Oct. 26.—A brisk demand and advancing tendency in prices continue to feature pig iron. Virtually all classes of melters are participating in the movement, except steel producers. Since the first of October there has been a steady increase in the melt. Sales during the past several days total close to 20,000 tons, with inquiries outstanding between 4000 and 5000 tons. The American Stove Co. bought 6000 tons of high silicon iron, along with 1500 tons of northern and southern foundry. The leading local producer has sold a limited tonnage of iron for first quarter. Prices on such sales have been at the maximum figures of the present range for last quarter. Several additional instances of small premiums for immediate shipment are reported. High silicon iron is scarce, and the latest sales reported were at 50 cents to $1 per ton higher than the last preceding transactions.

Birmingham, Ala., Oct. 26.—No. 2 foundry pig iron has been advanced by Birmingham furnaces to $21 for this year and the first quarter by some furnaces. Whether $20 has disappeared is not certain. A large amount of iron has been taken from furnace stocks. Foundry reserves also are getting down to a minimum. Two orders for more than 1500 tons each were closed recently.



Imports Steady-Exports Lower

Shipments Drop from 188,963 Tons in August to 136,754 Tons in September, the Smallest Monthly Total Since February—Imports Remain at August Level—Pig Iron and Scrap Receipts Feature Import List

IRON and steel exports backslid in September, according to reports of the department of commerce just released. Shipments in that month totaled 136,754 tons, compared with 188,963 tons in August and 135,582 for the same months of last year. The rate of imports remains steady, although only two months of 1925 had smaller import totals than September, that month was larger than any but December in 1924. Imports for the nine-month period ending Sept. 30, 1925 totaled 685,353 tons, compared with 411,823 tons for the same months of 1924 and 556,281 tons for all of last year. If the present rate of importing continues through 1925, it will aggregate the highest total since 1913. Imports were featured by 68,445 tons being received in September compared with 68,489 tons in August and 64,642 tons in July. Although only two months of 1925 had smaller import totals than September, that month was larger than any but December in 1924. Imports for the nine-month period ending Sept. 30, 1925 totaled 685,353 tons, compared with 411,823 tons for the same months of 1924 and 556,281 tons for all of last year. If the present rate of importing continues through 1925, it will aggregate the highest total since 1913. Imports were featured by 894 tons in September 1924. Exports for September 1925 were the smallest of any monthly total since February. Shipments for the first nine months of this year totaled 1,306,674 tons, compared with a total of 1,805,064 for the entire year 1924, and 1,392,-

IMPORTS AND EXPORTS

Gross Tons

	—1925—		—1924—	
	Imports	Exports	Imports	Exports
Jan.	77,065	141,714	26,677	249,126
Feb.	92,380	102,302	42,277	165,912
March	92,110	155,386	39,279	124,762
April	71,249	155,426	50,975	132,739
May	68,117	150,612	66,806	155,422
June	83,330	136,847	60,474	172,982
July	64,642	138,670	30,410	138,845
Aug.	68,489	188,963	44,928	138,670
Sept.	68,445	136,754	45,216	135,894
Oct.	.....	.....	40,877	158,553
Nov.	.....	.....	34,300	124,464
Dec.	.....	.....	69,281	129,465
Totals	685,353	1,306,674	556,281	1,805,064

Year	Imports	Exports
1923	734,734	2,009,141
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,201	6,465,053
1916	328,965	6,110,732
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635

IRON AND STEEL IMPORTS

Gross Tons

	September		Nine Months ended September	
	1925	1924	1925	1924
Pig iron	29,917	16,347	315,671	160,123
Ferromanganese, manganese metal and alloy	3,204	3,486	51,103	73,650
Ferrosilicon	300	92	4,064	8,280
Scrap	10,413	7,567	71,430	45,287
Steel ingots, billets, blooms and slabs	1,855	2,771	21,227	29,947
Steel bars	3,748	**	43,119	**
Iron bars	353	218	9,070	3,326
Structural shapes, plain	6,086	3,201	61,284	29,440
Rails and splice bars	4,453	1,709	34,811	33,884
Boiler and other plate	52	502	410	3,247
Sheets, skelp and saw plate	197	122	2,785	1,988
Tin plate	24	17	235	932
Round iron and steel wire	390	254	3,023	2,817
Wire rope and insulated wire	112	3,504	1,715	13,154
Flat wire and strip steel	170	255	1,610	1,742
Wire rods	324	236	5,485	5,373
Tubular products	6,260	4,170	54,537*	43,764
Nails and screws	26	88	1,153	376
Bolts, nuts, rivets, etc.	6	26	79	133
Castings and forgings	465	252	2,452	2,147
Totals	68,445	45,216	685,353	459,610

*An error in shortage of 515 tons in June has been added to the above total.

**Steel bars not reported separately prior to January 1, 1925.

DESTINATION OF EXPORTS FOR SEPTEMBER, 1925

Gross Tons

Countries	Rails	Galvanized sheets	Plates not fabricated	Tin plate	Terne Sheets, black	Steel Barb-ed wire
Argentina	....	401	....	138	57	328
Australia	....	224	....	....	....	156
Brazil	275	513	....	183	11	817
Brit. South Africa	194	25	....	....	....	544
Canada	2710	1951	4401	3610	3903	57
Chile	....	28	....	250	....	....
China	....	605	....	1525	....	....
Columbia	300	460	....	6	....	670
Cuba	3626	1130	63	945	133	226
Central America	412	508	305	....	....	349
Dutch East Indies	....	947	....	....	....	....
Hong Kong	....	....	....	526	....	....
Japan	78	307	37	3713	6733	....
Mexico	384	503	143	208	91	391
Norway	....	41	....	....	....	....
Europe	....	....	....	....	676	....
Other Europe	....	425	....	75	....	....
Other countries	616	2653	496	241	288	327
Other South America	162	271	....	....	104	71
Peru	....	....	....	153	....	....
Philippine Islands	854	1392	93	236	11	367
South America	....	....	315	....	....	....
Uruguay	....	....	....	27	....	....
Venezuela	....	....	....	9	....	288
Total	9601	12,784	5853	11845	12007	4582

tured by the increased tonnage of scrap brought in. This material rose from 6602 tons in August to 10,413 tons in September. In the same period, rails and splice bars gained from 3031 to 4453 tons, and semifinished from 915 to 1855 tons. Pig iron tonnage continues heavy, September showing but a slight decline from August totals. Almost half the entire tonnage imported in the first nine months of 1925 is pig iron, this material totaling 315,671 tons. Receipts of tubular products fell from 10,275 to 6260 tons in the August-September period.

The largest loss on the export list was in boiler tubes and welded pipe, this dropping from 35,527 tons in August to 18,746 tons in September. Most other products also lost some, iron and steel scrap going from 11,461 to 4940 tons, plates from 9576 to 6160 tons, and steel rails from 25,463 to 9611 tons.

IRON AND STEEL EXPORTS

Gross Tons

	September 1925	September 1924	Nine months ended September 1925	Nine months ended September 1924
Pig iron	3,349	4,799	22,844	34,083
Ferromanganese and spiegeleisen	21	108	4,101	3,253
Scrap	4,940	2,668	62,185	87,205
Ingots, blooms, billets, sheet bars and skelp	7,610	14,501	54,950	66,459
Iron bars	343	259	3,877	4,243
Steel bars	8,7 0	6,13?	82,386	78,650
Alloy steel bars	146	140	2,853	1,047
Wire rods	576	881	16,1?0	14,426
Plates, iron, steel	6,160	6,305	75,556	68,289
Galvanized sheets	12,875	8,142	122,571	75,072
Black steel sheets	12,007	11,3?5	65,7?4	110,?60
Black iron sheets	841	681	10,176	7,972
Hoops, bands and strip	3,812	1,947	2?,676	26,662
Tin plate, terne plate	12,245	7,735	113,344	120,542
Structural shapes, plain	7,591	9,098	68,656	78,458
Structural shapes, fabricated	5,822	6,229	50,882	54,073
Metal lath	214	99	2,347	1,4?1
Steel rails	9,611	18,713	130,833	157,875
Rail fastenings, switches, frogs, etc	2,982	3,047	2?,556	28,793
Boiler tubes and welded pipe	18,746	13,927	180,203	159,918
Malleable iron screwed pipe fittings	456	824	6,672	8,951
Cast iron screwed pipe fittings	1,158	432	5,657	5,499
Cast iron pressure pipe and fittings	1,343	?07	10,356	10,332
Cast iron soil pipe and fittings	972	740	6,853	4,?06
Plain wire	2,2?0	1,141	27,365	15,039
Barbed wire and woven wire fencing	4,872	6,563	53,207	66,835
Wire cloth and screening	104	89	1,327	1,369
Wire rope	226	341	3,386	3,463
Insulated wire and cable	25	48	535	841
Wire, other manufacturers of	942	652	6,537	8,521
Wire nails	777	527	6,737	19,021
Nails, other than wire and including tacks	681	477	6,856	5,449
Horseshoes	41	89	542	760
Bolts, nuts, rivets, excepting track	1,236	1,471	13,044	13,232
Car wheels and axles	1,023	2,710	15,252	16,558
Iron castings	1,553	827	8,0 4	6,2?5
Steel castings	239	355	3,537	4,679
Iron and steel forgings	126	56	1,738	1,177
Total	136,754	135,894	1,306,674	1,401,923

ORIGIN OF IRON ORE IMPORTS

Gross tons

	September 1925	September 1924
Belgium	300	.....
Germany	770	.....
Spain	.....	4,161
Sweden	14,458	76,274
United Kingdom	50	.....
Canada	565	705
Cuba	23,500	13,396
Chile	30,300	39,300
Algeria and Tunis	22,750	.....
French Africa	.....	36,100
Other Countries	.....	1,284
Total	92,693	171,220

DESTINATION OF EXPORTS BY COUNTRIES IN SEPTEMBER

Belgium	858	Mexico	6,176	Strait Settlements	757
Denmark	152	Newfoundland and Labrador	119	China	4,046
Finland	69	Bermuda	26	Chosen	1
France	688	Barbados	1	Java and Madura	1,623
Germany	189	Jamaica	116	Other Dutch East Indies	2,365
Greece	16	Trinidad	269	French Indo-China	2
Irish Free State	1	Other British West Indies	526	Hongkong	530
Italy	2,620	Cuba	14,998	Japan	13,091
Malta, Goza	2	Dominican Republic	907	Kwantung	72
Latvia	1	Dutch West Indies	189	Palestine and Syria	42
Netherlands	484	French West Indies	1	Philippine Islands	4,359
Norway	123	Haiti	172	Siam	10
Portugal	3	Virgin Islands of U. S.	17	Australia	2,058
Rumania	140	Argentina	1,826	British Oceania	11
Russia in Europe	62	Boliv'a	143	French Oceania	6
Spain	42	Brazil	3,310	New Zealand	28
Sweden	21	Chile	1,759	British West Africa	1
Switzerland	1	Colombia	7,041	British South Africa	1,431
Turkey in Europe	49	Ecuador	102	British East Africa	17
United Kingdom	4,100	British Guiana	36	Egypt	100
Canada	47,677	Dutch Guiana	54	Algeria and Tunis	20
British Honduras	17	Paraguay	6	Morocco	1
Costa Rica	198	Peru	814	Portugese East Africa	101
Guatemala	786	Uruguay	185	Other Portugese Africa	2
Honduras	141	Venezuela	2,572		
Nicaragua	372	British India	3,209	Total tons	136,754
Panama	1,633				
Salvador	1,058				

ORIGIN OF FERROMANGANESE AND MANGANESE ORE IMPORTS

Gross tons

	September 1925	September 1924
Manganese ore from		
Germany	.....	6
Russia in Europe	6,648	.....
Brazil	5,628	.....
British India	9,980	6,060
China	245	.....
Hong Kong	199	.....
Netherlands	.....	75
Total	22,709	6,141
Ferromanganese from		
France	42	32
Netherlands	159	.....
United Kingdom	2,294	3,454
Canada	799	.....
Other Countries	75	.....
Total	3,369	3,486

IMPORTS OF IRON AND STEEL PRODUCTS BY COUNTRIES IN SEPTEMBER

Gross tons

Country	Tons
Austria	30
Belgium	11,768
Czechoslovakia	277
France	5,072
Germany	7,992
Irish Free State	19
Italy	3
Netherlands	3,893
Norway	43
Spain	1
Sweden	2,097
United Kingdom	13,643
Canada	9,174
Mexico	1
Cuba	3,932
Virgin Islands of U. S.	4
Uruguay	1
India	10,320
Ceylon	1
Java and Madura	4
Hongkong	2
Japan	3
Kwangtung	125
British West Africa	10
Algeria and Tunis	30
Total	68,445

IMPORTS OF PIG IRON, SEPTEMBER, 1925

Gross tons

British India	10,319
Germany	5,351
United Kingdom	10,402
Netherlands	3,450
Belgium	100
Canada	170
Kwangtung, leased territory	125
Total	29,917

IMPORTS OF STEEL BARS, SEPTEMBER

Gross tons

Austria	30
Belgium	2,888
France	137
Sweden	591
United Kingdom	90
Other Countries	722
Total	4,458

Plant Not Merged

Chattanooga, Tenn., Oct. 27.—Paul J. Kruesi, president of the Southern Ferro Alloys Co., states a proposed consolidation of his company with that of the Bon Air Coal & Iron Corp. has not been effected. Overtures were made for uniting the two companies but the merger was not closed. No change in ownership of plants and properties of the Southern Ferro Alloys Co. has been made.

The executive committee of the National Association of Purchasing Agents will hold a meeting at the Sinton hotel, Cincinnati, Nov. 7. While there the committee will be the guests of the Cincinnati local association of which Harry Fenner, purchasing agent of the Cincinnati Shaper Co., is president.

Uses of Stainless Steel Grow Rapidly

(*Concluded from Page* 1090)

hardness, a high carbon type of stainless steel has been developed containing the regular 12 to 14 per cent chromium, but a high carbon content around 0.70 per cent to 0.80 per cent.

In the chrome-carbon field there are compositions which contain from 11 per cent to 15 per cent chromium and 0.15 per cent to 0.25 per cent carbon and fall between the Type A stainless steel which requires heat treatment and the stainless iron type which is stainless without heat treatment. The steels in this intermediate field require a heat treatment to make them stainless, but after heat treatment are not too hard to be machinable. This type has been used in Europe for machinery parts and similar purposes, but in this country has not been used to any extent, as it has no particular advantage over the Type A steel in what is known as the heat treated or particularly annealed form. This latter material is machinable and also stainless. It has better physical properties than the 0.15 to 0.25 carbon material, which has rather arbitrarily been called a mild steel type for want of a better name.

Stainless Iron Type

Owing to the density and hardness of stainless steel of the original type, efforts were made at an early date to modify it so that it would not require heat treatment and so that it could be more readily used as raw material in the manufacture of forged, stamped, pressed and machined articles for those purposes in industry, commerce and personal use where extreme strength is not required but resistance to corrosion is desirable.

The development of this type was retarded because of the difficulty in introducing chromium in the steel and maintaining a low carbon, but improvements in methods have made possible the manufacture of a composition containing from 10 per cent to 19 per cent chromium and having a carbon content of 0.12 per cent or less. This material is soft, malleable, can be cold worked without great difficulty, and while much stronger it resembles wrought iron in many ways. Therefore, in selecting a name for this type it has been called stainless iron, although it is in reality an extremely low carbon form of steel, since it is manufactured by melting in electric furnaces. It has almost the same resistance to corrosion as heat treated stainless steel and while heat treatment is not necessary to produce stainlessness the physical properties of the iron may be greatly improved by heat treatment.

For turbine blades the stainless iron type, carefully heat treated, has proven superior to stainless steel and it is possible to procure bar steel of the stainless iron type, having guaranteed physical properties which meet the government's requirements indicated in the following table:

Elastic limit	Over 60,000 lbs. per sq. in.
Yield point	Over 80,000 lbs. per sq. in
Tensile strength	Over 100,000 lbs. per sq. in.
Elongation	Over 20 per cent
Reduction of area	About 65 per cent
Brinell	About 230 BN
Izod impact	Over 50 ft. lbs.
Machining properties	Good

Stainless wire of the iron type is now being drawn and used for parts of scientific instruments and various wire articles where resistance to corrosion coupled with strength in excess of that of nonferrous metals is desired. As the production of wire is perfected and cheapened it will no doubt come into use for all sorts of screens and similar purposes.

Stainless iron sheets for structural purposes and common uses such as roofing, ship plates and pressed steel articles have developed rapidly during the past five years.

Roofs have been covered with it. The navy department has been making extensive tests; car companies are experimenting with it and efforts are being made to develop a material which, although not sufficiently resistant to remain bright and stainless, is resistant enough to withstand the progressive rusting or corrosive action of rain, fresh water and salt water, and atmospheres containing fumes and gases common to manufacturing centers. It is, of course, a misnomer to describe such a material as stainless iron or rustless iron and it will no doubt appear under trade names to distinguish it from the rust resisting wrought irons and irons of unusual purity which are also rust resisting to a marked degree. In this type of stainless iron the material will probably discolor and after assuming a rusty appearance due to a thin film of colored oxide, it will be more resistant to corrosion than any steel or iron available, excepting the higher grade of stainless steel.

Product Forges Easily

Since stainless iron is malleable and is easily forged it is used in this form for parts of automobiles, agricultural implements, sporting goods, parts of conveying machinery, marine fittings, mining machinery, ornamental iron works, etc. Stainless iron castings are made commercially in England, but this field is practically untouched in this country.

The use of stainless steel for cutlery and its development for other purposes was interrupted by the late war when the government requested that chromium be used only for war purposes. In compliance with this request, the manufacture of cutlery steel was stopped. Research work was interrupted by the pressure put upon steel mill laboratories in connection with the heavy production of war materials and the only purpose for which stainless steel was made in any quantity during the war was for aeroplane and automotive engine valves. It was then found that it could be depended upon to outlast any tungsten steel valves. As a result, those who were manufacturing stainless steel at that time gained considerable experience but at great cost. Little was known about the manufacture of stainless steel and it was not an ideal time for experimental work.

Adding Nickel to Steel

The addition of nickel to steels where chromium predominates does not improve either the stainless qualities, except in the presence of certain acids, or the physical properties of the high chromium steels. On the other hand, in the effort to overcome corrosion in steels, a group of nickel steels has been developed in which nickel is the predominant element and chromium is added to improve the physical properties. Nickel in large amounts gives steel the properties of a nonferrous metal or alloy with a corresponding loss of physical properties. The addition of chromium tends to offset this. Since this nickel steel field is almost as broad as the chromium steel field, no attempt will be made to discuss it, except to say that, aside from the increased resistance to certain acids, particularly sulphuric and hydrochloric acids, the nickel-chrome group is not quite as resistant as the chromium group and the nickel-chrome steels do not have the strength, hardness nor the responsiveness to heat treatment which is found in the steels of the chromium group.

The addition of copper to the extent of 1 per cent in steels containing from 16 per cent to 20 per cent chromium and about 0.30 per cent carbon has the effect of making the steels stainless without heat treatment. It is said to give stainless steels, in the higher carbons, properties resembling stainless iron. This development is so recent that comment on it should be deferred until its value has been established in actual use.

Price Stabilizing Is Suggested by Gary

(*Concluded from Page* 1085)

cause of our desire and effort, respectively, to secure more than our fair share of trade, and, as a consequence, we have carried competition to the point of accepting unreasonably low prices for our commodities. Our government, and our customers, would have more respect for us if we always insisted upon fair and reasonable prices, never less, never more.

In some respects the world's outlook today is the antithesis of that of ten years ago. Then there was raging a bloody, destructive world war. Now, peace predominates; indeed, it is almost complete. The seeming disposition of the leading men of all nations is tending toward harmony of action. This augurs progress and prosperity. It means a higher level of morals, a decrease of crime and poverty, and increase of comfort and happiness. We have reason to be grateful and we have reason to hope and expect great prosperity. We should always be prepared for emergencies or depressions, but we may courageously and steadfastly pursue our business course with the expectation of succeeding to our reasonable satisfaction.

Foundry Orders Heavier

Washington, Oct. 27.—Unfilled orders for foundry equipment on Sept. 1 were $598,132, a considerable increase in value over the total of $447,925 reported for Aug. 1 and $378,016 for Sept. 1, 1924, according to reports received by the department of commerce on shipments sales and unfilled orders . Sales during August amounted to $580,865, as against $353,561 for July, and $244,408 for August, last year. Shipments totaled $388.371 in August, as compared with $352,603 in July, and $284,607 in August, 1924.

Speakers Are Named

Programs for its fall meetings have just been announced by the New England Foundrymen's association. On Nov. 11, H. Cole Estep, vice president, Penton Publishing Co., Cleveland, will talk on "Developing New Fields for Castings." The same evening Vincent T. Malcolmn, metallurgical engineer of the Chapman Valve Mfg. Co., Indian Orchard, Mass., will lead the discussion on the "Application of the X-ray to the Determination of Causes for Casting Defects."

On Dec. 9, A. A. Grubb, technical department of Ohio Brass Co., Mansfield, O., will present a paper on the "Technical Control in the Foundry as an Aid to the Foundryman." Prepared discussion of this paper will be presented by various members of the association. The annual meeting of the association, which will be held Jan. 13, will be a past president's night.

Stoker Output Gains

Washington, Oct. 27. — Mechanical stoker sales in September totaled 119, a gain of 28 over August, according to reports to the department of commerce from 13 establishments. Fire tube installations totaled 34 and water tube 85. Further comparisons follow:

	Stokers sold	Fire tube boilers	Water tube boilers
1923 Total	1464	177	1287
August	94	17	77
September	73	27	46
October	104	7	97
November	106	11	95
December	91	18	73
1924 Total	1128	161	967
January	57	4	53
February	135	28	107
March	131	17	114
April	120	23	97
May	122	23	99
June	128	26	102
July	147	30	117
August	91	27	64
September	119	34	85

Republic Iron Quarter Shows Gain

Marked improvement in earnings compared with a year ago is shown by the third quarter report of the Republic Iron & Steel Co. After charges, net was $846,461 against a net loss of $45,379 in the corresponding quarter of 1924. In the second quarter of 1925 the company reported earnings, after charges, of $840,306 and in the first quarter of 1925 of $812,565.

The surprise in the Republic statement is seen in the fact that earnings for the third quarter covering the depressed months of July and August, were the greatest for the year, exceeding both first and second quarter. The betterment of September operations probably accounted for the increase in third quarter showing. Unfilled orders increased to 123.842 tons as of Sept. 30 against 102.320 tons three months before and 77,998 tons one year ago.

Earnings for the nine months were $2.499 326, or $3.95 a common share against $1,765,004, or $1.50 a share in the corresponding period of 1924.

Building Council To Meet

One of the principal features of the annual meeting of the American Construction council, to be held in Chicago Nov. 18-21, will be a national conference on "Better Building." Representatives of the industry are expected to discuss the relation of construction to the public, and the place of craftsmanship and apprentice training in the building program.

On Friday, Nov. 20, a general session on the reduction of construction peaks and depressions is scheduled, which is to include a report of the council joint committee and the American Railway association on the co-ordination of publicity for a national campaign on greater stabilization of the industry.

Opening the general sessions of the meeting on Nov. 18 will be preceded by a meeting of the board of governors and the executive committee. Speakers will be of national prominence. A national conference on highway construction will be held Saturday, Nov. 21.

Institute Sentiment Is Optimistic

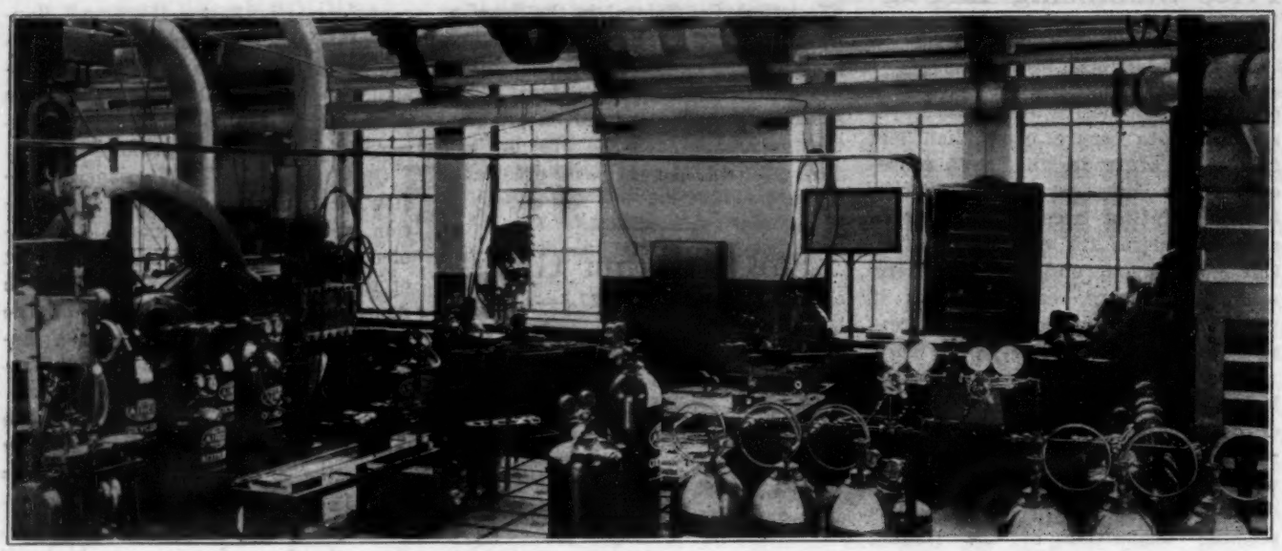
(*Continued from Page* 1084)

Butler Jr. who expressed disappointment in his inability to attend. C. M. Schwab was not present either at the day's meeting or at the banquet.

It was learned at the meeting that the committee recently appointed to revise the estimate of the steel industry's ingot capacity, is busy formulating a definition of what constitutes steelmaking capacity. After a plan has been devised which will enable all companies to report uniformly, question blanks will be sent out for the desired information.

Speakers at the banquet including Col. F. Vernon Willey, president of the Federation of British Industries, and Dr. Peter Munch of Denmark who is in this country attending the conference of the Interparliamentary union at Washington dealt with international taxes. Hon. Charles Nagle, secretary of commerce during the Taft administration said the greatest problem of our time relates to the dangers of overlegislation.

An unusually large number of technical papers were presented at this meeting. Three were devoted to problems of alloy steel, four dealt with various methods of mechanical puddling, and two involved the results of investigations on fuel consumption. Dr. John A. Mathews, vice president, Crucible Steel Co. of America, presented a discussion on the paper on silicon steel. T. H. Nelson, consulting metallurgist, Ludlum Steel Co., Watervliet, N. Y., discussed the paper on stainless steel.



An automatic tube welding machine and two other welding tools were shown in operation by a manufacturer of gas welding equipment

Welding Exhibit Is Success

Annual Fall Meeting of American Welding Society at Boston Features First Exclusive Display of Equipment — Attendence Nearly 10,000 — Technic Linked with Production

IN MANY ways the meeting of the American Welding society just concluded at Boston takes rank as one of the most important in the history of welding. The Massachusetts Institute of Technology, the cities of Boston and Cambridge, and a score or more of important manufacturing concerns in New England gave their whole-hearted co-operation to insure the success of this first exhibit of welding machinery. Nearly 30 exhibitors had welding machinery in actual operation showing all types of welding. The exhibit was unusually well attended with over 2000 registered.

The technical sessions, all of which were held at the institute buildings, were more comprehensive than usual and provoked much valuable discussion and commendation.

Diversified Operations Shown By Exhibits

SPARKS were flying in all parts of the mechanical laboratory building during the exhibit of welding machinery.

At the booth of the Page Steel & Wire Co. many types of steel articles fabricated by welding were shown. Of particular interest was a steel car seat of the type used in railway coaches and made by the Heywood-Wakefield Co., Wakefield, Mass. The Eggleston Supply Co. of Boston had a booth showing a large variety of apparatus among which was a welder known as a triplex heater adapted to repairing cracked and defective castings, and made by the Electric Heater Co., New London, Conn. The actual use of welding wires was shown in a large cabinet in the booth of the American Brass Co., Waterbury, Conn. An automatic shape cutting machine attracted much attention at the exhibit of the Automatic Cutting Machine Co., Boston. The machine in operation was of the same type as one claimed to be the largest automatic shape cutting machine built and used for cutting locomotive side rods. The operation is simple. A master form is mounted on a table and a carriage mounted over this form supports a torch on an extended arm. A small motor operates bevelled gears which cause the carriage to follow the templet and the form is thus reproduced in the piece which is being cut.

The New England Compressed Gas Co. had an interesting exhibit showing the use of different types of torches and portable outfits. One of the largest single exhibits was that of the Air Reduction Sales Co., New York, showing commercial method of welding tubing. Another machine exhibited by this same company demonstrated the cutting out of art designs in ⅝-inch steel plate. The operator merely guided a pointer over the outline of a picture and the oxy-acetylene torch neatly cut a piece corresponding to the picture out of the plate.

The General Electric Co., Schenectady, N. Y., had a large arc seam welder in operation which attracted crowds throughout the exhibit. Various types of generators were shown, one of these exhibited by the Burke Electric Co., Erie, Pa., featured a micrometer adjustment of the welding current. Many interesting actual repair jobs were performed at the booth of the Electric Arc Cutting & Welding Co. A complete rail welding outfit was shown by the Rail Welding & Bonding Co., Cleveland.

Other exhibits included portable

outfits made by the Carbic Mfg. Co., Duluth, Minn., butt and spot welding machines shown in operation by the Thomson Spot Welder Co., Lynn, Mass., method of commercial welding of boiler tubes by the Westinghouse Electric & Mfg. Co., and miscellaneous equipment of the Torch Weld Equipment Co. John A. Roebling's Sons Co. had a large exhibit. Among other things a completely welded boiler 5 feet by 4 feet was shown as made commercially by A. F. Robinson Boiler Works, Cambridge, Mass.

The Acme Electric Welder Co. demonstrated its spot welder embodying two or three recent developments. The electrodes which are water cooled have thin hollow tips which instead of screwing on as in the past have a snug slip fit. This does away with any chance of leakage and facilitates rapid changing of the tips. The horn connection to the electrodes which in the past has been a split bar and clamp arrangement, has been redesigned. The horn bar is solid with two holes at right angles near its end, one for the electrode and the others for a tightening bolt. The American Electric Fusion Corp. operated an electric spot welding machine.

Welders Seek Unbiased Information

REALIZING the possibility of a brilliant future for the welding industry, which is still in its infancy, those in attendance at the fall meeting at Boston expressed an eagerness for reliable information which is not always evident at conventions of older industries. Scientific research work is one of the greatest aids to all branches of industry, said Morris Holland, director of the division of engineering and industrial research of the National Research council, in an address on the second day of the convention.

Bringing general research work down to the welding field, Prof. C. A. Adams of Harvard engineering school told of the activity of the society and of its relation to industry. Following Professor Adams, W. Spraragen outlined the proposed plans of the American Bureau of Welding, which is the research department of the American Welding society. These include the expenditure of $100,000 investigating welding in connection with pressure vessels and of a larger sum at a somewhat later date in the investigation of welding for steel structures.

At one of the technical sessions, chairmen of the various subcommittees gave brief reports. The committee on welding wire raised the question as to what actually makes welding wire good or bad. There has been much talk of poor welding wire.

Rails Improved by Welding

The report of the committee on rail joints pointed to the marked increase in life of street rails where joints are welded. It is not unlikely that properly welded joints would increase the life of rails by 25 per cent, and if this could be done, it would mean a $15,000,000 annual saving to the street railway companies of the country.

The arc weld is a recent addition to the commercial tools available in manufacturing, and its increasing use in production work may be looked for in the immediate future, according to W. Spraragen, who read a paper prepared jointly by himself and H. M. Hobart on "Arc Welding as A Manufacturing Process." The intensive and successful use of arc welding in repair work has lead to the gradual adoption of the process in manufacturing, continued Mr. Spraragen.

A plea for more research work in the field in thermit welding was given in the Wednesday morning session by Robert L. Browne of the Metal & Thermit Corp. While looking far into the future and predicting much improvement, Mr. Browne stated that at present cast thermit steel will exhibit such properties as 110,000 pounds per square inch ultimate strength with 2 or 3 per cent elongation or the other extreme of 55,000 pounds per square inch with 40 per cent elongation.

A somewhat startling account of actual field work in gas welding of power plant piping was given Wednesday afternoon by A. W. Moulder, chief engineer of the Grinnell Co., Providence, R. I. The Grinnell Co.'s experience in field welding of pipe lines dates from a power job for a Providence manufacturer about 12 years ago where several cast steel fittings which were found to be defective were replaced by welded fittings made from the pipe. These fittings on 200 pounds pressure and 125 degrees superheat have given satisfaction ever since.

Selection of Materials

The session Friday afternoon was devoted to the selection of materials for welding and provoked much discussion as to methods of testing and standardization of wire. J. R. Dawson, metallurgical engineer of the Union Carbide & Carbon Research Laboratories, spoke of the handicap brought about through too low allowable stress on welded joints imposed by states and municipalities. He said that welding was following in the footsteps of riveting and other methods of fabrication, and that it was up to welding engineers to conclusively demonstrate that higher unit stresses were warranted. Mr. Dawson also spoke for the use of a new rod known as a high test rod which he says under normal conditions gives 10 per cent greater strength in the weld than the use of the usual Norway iron rod or the mild steel rod.

The need of an easily made standardized test for welding wire was brought out in a paper by C. A. McCune, director of research, American Chain Co., in a paper entitled "Welding Wire A Factor In Good Welding,"

Metallugical problems of welding were discussed at considerable length by C. J. Holslag, chief engineer of the Electric Arc Cutting & Welding Co., Newark, N. J., in his discussion of his printed paper which he did not read. "In general," said Mr. Holslag, "almost all desirable elements in the wire burn away in the high temperature of the arc." This is particularly

Conducts Welding Tests

To determine the stresses which occur in track seam welded joints under unusually severe conditions, the executive committee of the welded rail joint committee, at a meeting held in Washington early in October, decided to conduct a series of telemeter tests. Further knowledge of these stresses is desired to aid the designing of joints of longer service.

Welding was started on a number of typical welding wires used by street railways. Test specimens are being made by welding (a) two plates of 0.20 carbon, (b) two plates of 0.75 carbon and (c) one plate of 0.20 carbon with a plate of 0.75 carbon. These tests are being made with experts in metal arc welding, carbon arc with "hand feed" system, and carbon arc with "rod in position" system.

true of manganese and carbon, and it follows that high manganese and carbon content of the wire does not necessarily improve the quality of the actual weld.

H. M. Carter, Oxweld Acetylene Co., New York, spoke in favor of the flame test, and also advocated the use of coated wire. He said the use of coated wire is almost universal in Europe and that their tests invariably show higher strength for coated wire than for bare wire.

Recent developments in the fabrication of sheets were elaborately described in a paper by J. W. Meadowcroft, general supervisor of welding, E. G. Budd Mfg. Co., Philadelphia, Friday afternoon. The paper was illustrated by a film showing actual operations in the manufacture of automobile bodies.

Shovel Makers Vote To Standardize Product

Atlantic City, Oct. 27.—More than 4000 finishes, varieties and sizes of shovels will be eliminated by manufacturers beginning May 1, 1926, in accordance with an agreement by manufacturers, wholesalers, retailers and buyers who met representatives of the simplified practice division of the department of commerce here last week. The meeting was part of the joint convention of the American Hardware Manufacturers association and National Hardware Association of the United States.

Members of the associations received a report submitted by a special committee that has been studying the manufacture, distribution and use of shovels for more than two years. This report recommended the reduction from 223 sizes to 127. The report called attention to the present practice of making shovels in five finishes and four grades. The conference voted to eliminate one grade and all but one finish. An exception to reduction of finishes was made on behalf of the foundry industry, representatives stating that a polished shovel saves time of workmen.

A substantial increase in the volume of trade of automobile accessories manufacturers was reported, and predictions were made that further gains will be shown in the first quarter of 1926. One reason assigned for the improvement is that automobile manufacturers are eliminating equipment formerly included in the purchase price of their cars, to meet severe competition. This is creating demand for the accessories manufacturers, jobbers and retailers.

Sheet & Tube Earnings Above Year Ago

Third quarter earnings of the Youngstown Sheet & Tube Co., were slightly smaller than in second quarter but far exceeded third quarter of 1924. Gross operating income was $6,560,802 against $6,954,167 in second quarter and $4,168,620 in third quarter of 1924. After all charges and federal taxes net available for dividends was $3,299,436 against $2,424,835 in the June quarter and only $472,899 in the September quarter of 1924.

After payment of dividends there was a surplus of $2,062,610 making the nine months total surplus $6,709,421. Depreciation was continued at the same heavy rate $2,217,362.50 having been charged off gross earnings on that account bringing total depreciation charges for the first nine months to $6,754,410.02, an amount larger than the one placed in the surplus fund.

President J. A. Campbell did not attend the meeting, but he was satisfied with earnings, especially since August was the low month in tonnage and July was not much better. September was fair and enabled the company to come within 14 cents of second quarter.

Indications are Sheet & Tube will show earnings for the year of more than $13 per share on common stock of which about $9 have been reinvested in modern new mills. The comparative income account follows:

	Third quarter 1925	Second quarter 1925	Third quarter 1924
Net operat'g inc.	$6,560,802	$6,954,167	$4,168,620
Other income	576,734	831,185	338,968
Gross income	7,137,537	7,785,352	4,507,588
Miscel. charges....	184,826	605,106	624,513
Depletion	242,048	251,987	180,678
Depreciation	1,975,313	2,016,948	2,114,652
Interest	1,060,613	1,067,474	1,088,847
To subsid. Co.s stockholders	10,298	.....	.....
Balance	3,664,436	3,843,835	498,899
Federal taxes	365,000	419,000	26,000
Net for dividends	3,299,436	3,424,835	472,899
Pref. dividends....	249,219	249,219	249,219
Com. dividends..	987,606	987,606	987,606
Surplus	2,062,610	2,188,009	*763,925
Earnings per common share	$3.08	$3.22	$.022

*Deficit.

Sanitary Ware Sales Drop

Washington, Oct. 27.—Sales of enameled sanitary ware in September fell from August levels, according to reports to the department of commerce from 21 manufacturers. Unfilled orders for baths dropped but total small ware gained slightly. Orders shipped in the nine months ended Sept. 30 in baths, lavatories and sinks were heavier than for the same period of 1924 or 1923.

The rapid development of the diesel engine for marine purpose was the subject of a paper by O. P. Robinson of the New London Ship & Engine Co., New London, Conn., presented recently before a meeting of the Hartford branch of the American Society of Mechanical Engineers.

Steel Barrel Output Up

Washington, Oct. 27.—Unfilled orders for steel barrels dropped at the end of September, but production of 510,869 pieces during that month gained over August and July, according to reports to the department of commerce. Shipments in September also showed an increase over August. Following comparisons are based on 31 companies and 36 plants for September and 30 companies with 31 plants for previous months.

	Production	Shipments	Unfilled orders for delivery within 30 days	Unfilled orders for delivery beyond 30 days
1924				
August	396,112	398,312	201,131	514,349
September ..	385,212	389,064	218,830	687,040
October	447,900	441,900	238,426	444,107
November ..	391,401	389,230	549,188	681,620
December	413,785	407,474	312,502	1,273,532
1925				
January	420,127	415,040	345,696	1,028,551
February	413,823	407,781	313,544	1,022,580
March	505,429	510,928	399,940	864,920
April	594,971	605,424	411,053	726,499
May	570,962	569,670	313,123	637,230
June	514,913	508,880	269,964	582,630
July	497,152	506,894	314,727	974,656
August	498,449	495,736	263,588	851,079
September ..	510,869	503,221	237,580	774,996

Fabricated Steel Plate Sales Continue Drop

Washington, Oct. 27.—Bookings of fabricated steel plate in September totaling 23,895 tons was the lowest point since April, and considerably below the high month of 1925, June with 34,402 tons booked, according to reports to the department of commerce from 35 establishments and reported summarily in IRON TRADE REVIEW, Oct. 22. Oil storage tank work was the only classification to gain from August to September. Following are further comparisons:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1923	538,156	296,128	43,876	9,730	141,258
1924	312,716	122,360	43,747	12,426	108,836
Sept.	19,881	10,248	1,100	902	6,682
Total (9 mos.)	205,215	75,945	30,988	7,348	79,224
Oct.	23,749	7,758	1,660	2,252	10,087
Nov.	34,153	12,787	1,876	304	9,647
Dec.	49,559	26,445	9,223	2,697	9,088
1925—					
Jan.	27,064	4,314	6,529	4,495	9,276
Feb.	20,805	3,321	4,059	289	7,763
March	22,502	2,908	3,635	651	8,158
April	22,421	6,547	1,460	682	9,351
May	27,684	3,503	2,118	404	10,141
June	34,402	16,327	2,192	373	11,349
July	29,367	6,381	2,254	602	14,159
Aug.	26,210	7,500	3,671	1,240	11,826
Sept.*	23,895	8,458	1,510	427	11,410
Total (9 mos.)	234,340	64,259	27,428	9,163	93,433

Revised.
*Data for one company estimated.

Industrial Men in the Day's News

Nathan Miller, New General Counsel of the United States Steel Corp.

WIDE juristic background and long public service makes of him an ideal choice for his new position.

ALTHOUGH lacking direct contact with the manufacture of iron and steel he has had wide experience a. corporation counsel.

TEACHER, attorney, jurist, and then state governor he comes to one of the most responsible posts in American industry.

TO ARRIVE at one of the most responsible advisory positions in industry through sheer force of personal development and mental ability, and without a broad background of specialized experience is a distinction attained by few. Nathan L. Miller, ex-governor of New York, has been awarded this honor in his selection as general counsel, director and member of the finance committee of the United States Steel Corp., to succeed the late Richard V. Lindabury.

Although never having been connected with the operating end of a steel works, nor having progressed through the various channels to an executive position in the iron and steel industry, he now arrives at a post which carries with it some of the greatest responsibilities of modern industrial life.

Mr. Miller's experience in juristic work and his long public service make of him an ideal selection for the work of helping to guide one of America's greatest industrial organizations. His abilities as corporation counsel as demonstrated on many occasions will be of valuable assistance in shaping the public and legal policies of the Steel corporation. Recognition of his mental keenness and business acumen is shown in his selection as a member of the finance committee of that organization.

Mr. Miller was born in Solon, Cortland county, New York, Oct. 10, 1868. He was graduated from Groton Union school in 1883 and Cortland Normal school in 1887. Later he entered a law office at Cortland, and while studying for the bar examinations taught school. He was engaged in the pedagogical profession from 1887-92. In 1893 he was admitted to the bar, and immediately started his legal work. From 1899 to 1903 he was a member of Dougherty & Miller, and in 1901 and 1902 he was corporation counsel for Cortland. His first public office was that of school commissioner, serving in this capacity from 1894-1900. He later became justice of the peace and corporation counsel and while in this office was appointed comptroller of the state, serving the term 1902-3. Mr. Miller next was appointed justice of the supreme court of New York, sixth judicial district, and served from Nov. 10, 1903 to Jan. 1, 1913. He was made an associate justice of the appellate division of the second department from 1905-10 and was in the first department from 1910-13. He served also as judge of the court of appeals in 1913.

Mr. Miller resigned from judicial duties late in 1913 to become chief counsel of the Solvay Process Co., establishing his home in Syracuse. He couldn't divorce himself from public office and in 1920 was drafted by the Republican party as its gubernatorial candidate. He was elected and later renominated, but in the second election was defeated by Governor Smith. Mr. Miller then sold his home in Syracuse and moved to New York where he has been active as corporation counsel.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

JOHN HENRY BODE, elected president and general manager of Wellman-Seaver-Morgan Co., Cleveland, at a meeting of the board of directors Oct. 20, has been vice president in charge of operations of McIntosh-Hemphill Co., Pittsburgh. Mr. Bode succeeds E. S. Church as president of the Wellman company, Mr. Church having been made chairman of the board. Mr. Bode was born in Youngstown, Oct. 3, 1886. He was educated there, and upon leaving school joined the engineering department of Lloyd Booth Co., Youngstown, afterward taken over by the United Engineering & Foundry Co. as a subsidiary. He went to Pittsburgh with that company after the merger. Next he spent a year in the engineering department of the Seamless Tube Co. of America at Monessen, Pa., and then three years with the Mesta Machine Co., Pittsburgh, in its engineering division. Following three years in the engineering department at the main office of the Carnegie Steel Co., Pittsburgh, Mr. Bode joined the McIntosh-Hemphill Co. He started in the engineering department, next becoming chief draftsman, then chief engineer, and in August 1913 was made vice president in charge of operations. Mr. Bode is a member of the Engineers Society of Western Pennsylvania, and of various Pittsburgh social organizations. His new position is effective Nov. 1.

* * *

J. J. Carter has been appointed factory manager of the Olds Motor Works, Lansing, according to an announcement by I. J. Reuter, president.

* * *

Elmer L. McIntyre, for several years with C. R. Rogers Co., Corry, Pa., has been made assistant general manager and secretary of the newly formed Brown-Fayro Co., Johnstown, Pa.

* * *

J. C. Wilson, representative at Cincinnati for Kelly & Jones Co., will continue in that capacity for the Walworth Co., Boston, which recently acquired the plants and branches of the former organization.

* * *

Edwin G. Howell has been made manager of the raw material department of the Chicago district office of Hickman, Williams & Co., succeeding Emil F. Axner, who died Sept. 4.

* * *

Richard Collings, who began his connection with the plumbing manufacturing trade through the Cleveland Faucet Co. where he took a course of training in the shops back in the '90's,

JOHN H. BODE

has joined the sales force of the Bridgeport Brass Co. to cover the Michigan, Buffalo, Ohio and Pittsburgh territories.

* * *

Fred A. Geier, president of the Cincinnati Milling Machine Co., Cincinnati, has been elected president of the Cincinnati Rubber Mfg. Co., that city, succeeding the late A. D. Scherl.

* * *

Owen D. Young, chairman of the General Electric Co., Schenectady, N. Y., has been appointed chairman of the American committee of the international chamber of commerce. He succeeds the late A. C. Bedford.

* * *

James A. Galligan, vice president of Mortimer B. Flynn Coal Co., Chicago, on Nov. 1 will become connected with Union Railway Equipment Co., that city. He will be connected with the sales end of the business. Formerly he had been with Allis-Chalmers Mfg. Co., Milwaukee, as assistant purchasing agent, and later assistant to the president of the By-Products Coke Corp.

* * *

Walter C. Cole is president of the newly organized advertising firm of Cole-MacDonald-Wood, Inc., Detroit. Edmund D. Wood is first vice president and Arch H. MacDonald second vice president. Among the accounts now handled are: Jewett Radio & Phonograph Co.; Hinkley Motors, Inc.; Gould-Detroit Axle Co.; Thomas F. Boothby; Commercial National Co.; Covert Gear & Mfg. Co., etc.

* * *

Thomas Potts has assumed the post of chief executive of Horace T. Potts & Co., Philadelphia, iron and steel jobbers. Harrison I. Potts, oldest of the four brothers, has resigned as an active partner owing to his outside business interests, but he will continue his interest in the company. C. W. Potts, manager of the tool and alloy steel division, has been spending less time in the business owing to recent illness. Horace M. Potts continues active. Edward Evans, one of the junior partners, and sales manager of the company until June, 1924, has resigned from the company.

* * *

E. Von Maltitz, formerly metallurgical engineer of the Illinois Steel Co., Chicago, has associated himself with H. A. Brassert & Co., that city, consulting engineers, to take charge of their work in the field of special steels. After graduating in Berlin he was for two years assistant superintendent of the open-hearth and bessemer departments of the Prager Iron & Steel Co. in Austria. Following this he became open-hearth superintendent of the Dominion Iron & Steel Co., Canada, in which position he remained for four years. He then became metallurgical engineer of the Illinois Steel Co., spending eight years in that capacity, first at the South Chicago plant and later at Gary. In the intervening years he was general superintendent of the Hess Steel Corp., producer of alloy and tool steels and also consulting engineer of the Witkovitz Iron & Steel Co. in Austria.

News of Societies

INTEREST in machine shop practice among members of the American Society of Mechanical Engineers is again evidenced in the program of papers for the society convention, to be held in New York, Nov. 30-Dec. 4. Two sessions are scheduled to cover this subject. A new feature of the meeting this year will be a session held under auspices of the special research committee on metal springs. Nontechnical subjects also receive their share of attention, with sessions planned to cover industrial psychology, management, and education and training for industries. The tentative program as announced is as follows:

Monday, Nov. 30

9:30 a. m.—Council meeting.
Local section delegates' conference.
2:00 p. m.—Council meeting.
Local section delegates' conference.
Main committee on power test codes.
8:00 p. m.—Open house.

Tuesday, Dec. 1

MORNING

9:30 a. m.—Machine shop practice session.
"Principles and Advantages of Optical Methods for Measuring Machine Parts," by Henry F. Kurtz.
"The Tension Ratio and Transmissive Power of Belts," by C. A. Norman.

AFTERNOON

2:00 p. m.—Industrial power session.
"The Value of Higher Steam Pressures in the Industrial Plant," by Wm. F. Ryan.
"The Supply of Industrial Power," by W. H. Larkin Jr.
4:30 p. m.—Henry Robinson Towne lecture on engineering and economics, by Herbert Hoover, United States secretary of commerce, Washington.

EVENING

8:00 p. m.—Award of honorary memberships to Herbert Hoover and Worcester R. Warner.
Presidential address and reception.

Wednesday, Dec. 2

MORNING

9:30 a. m.—Industrial furnace session.
"Industrial Furnace Efficiency," by V. Z. Azbe.
"Fuels and Furnaces for Industrial Heating," by W. Trinks.
9:30 a. m.—Material handling session.
"Material Handling Problems and Their Solution," by Frank D. Campbell.
"Safety in Materials Handling," by D. S. Beyer.
9:30 a. m.—Machine shop practice session.
"Question Marks in Machine Design," by by F. E. Cardullo.
"Some Comparative Wear Experiments on Cast Iron Gear Teeth," by G. H. Marx, L. E. Cutter and B. M. Green.
"Normal Pitch, the Index of Gear performance," by G. M. Eaton.
9:30 a. m.—Springs session, under auspices of special research committee on metal springs.
"Phosphor Bronze Helical Springs from the Standpoint of Precision Instruments," by W. G. Brombacher.
"Present Status of the Art of Manufacturing Small and Medium Diameter Steel Helical Springs," by F. H. Brown.
"Characteristics of Weighing Springs," by J. W. Rockefeller Jr.
"Springs for Electrical Measuring Instruments," by R. W. St. Clair.
"Formulas for the Design of Helical Springs of Square or Rectangular Steel," by C. T. Edgerton.
"An Outline for the Application of Fatigue and Elastic Results to Metal Spring Design," by T. McLean Jasper.

AFTERNOON

2:00 p. m.—General session.
Annual report of council.
Award of Charles T. Main, Junior and Student prizes.
Report of A. S. M. E. investigation for S. P. E. E. on mechanical engineering education.
Progress reports of professional divisions.
3:00 p. m.—Education and training session for industries of noncollege type, under auspices of committee on education and training for the industries.
"Education for the Industries of Noncollege Type in Europe," by Wm. E. Wickenden.
"Apprenticeship Movement and Its Relation to the Building Trades," by Francis Mahoney.

EVENING

6:30 p. m.—Annual dinner of society at Hotel Astor.

Thursday, Dec. 3

MORNING

9:30 a. m.—Management session.
"Influence of Plant Design on Plant Efficiency," by Harold T. Moore.
"Production Control in the Newsprint Industry," by George D. Bearce.
"Carbon Dioxide as an Index of Fatigue," by W. N. Polakov.

AFTERNOON

2.00 p. m.—Power plant materials session.
"Steel Castings for Use in High Pressure Steam Lines," by A. E. White.
"Quality of Bolts for Use in Power Plant Construction," by W. P. Wood.
"Furnace Refractories," by E. B. Powell.
2:00 p. m.—Industrial phychology session, under auspices of management division and Taylor society.
"Present State of Industrial Psychology," by Lillian M. Gilbreth.
"Psychology in Organization of Prison Industries," by E. A. Doll.
4:30 p. m.—Robert Henry Thurston lecture on engineering and science, by Dr. Zay Jeffries.

EVENING

8:00 p. m.—National defense session.

* * *

To Show New Machine Tools

Machine tools and equipment used in machine shop practice will form a large and important group of exhibits at the Fourth National Exposition of Power and Mechanical Engineering, which opens at the Grand Central Palace, New York, Monday, Nov. 30. Many new machines will be shown, filling out the exposition's basic purpose, to picture the developments in power generating and power using devices. Combustion devices for effectiveness and economy will also feature the show, and will include new designs of boiler furnaces, pulverized fuel burners and the latest achievements in crushing and drying coal.

* * *

Papers Program Is Enlarged

Two new papers dealing with structural steel have been added to the papers program for the annual convention of the American Institute of Steel Construction, to be held at White Sulphur Springs, W. Va., Nov. 11-14. The program was published in the Oct. 8 issue of IRON TRADE REVIEW. The new papers are: "Electric Arc Welding and Its Application to Structural Steel," by R. A. Storm, Morgan Engineering Co., Alliance, O., and "My Experience with Concrete and Steel in Building Construction," by Albert C. Martin, Los Angeles, Calif.

Members attending the meeting will participate in a golf tournament on Saturday, Nov. 14, plans for which have been arranged by C. M. Denise, chairman of the committee.

Convention Calendar

Oct. 28-30—National Association of Farm Equipment Manufacturers. Annual convention at Congress hotel, Chicago. H. J. Sameit, 608 South Dearborn street, Chicago, is secretary.

Oct. 29—American Refractories Institute. Fall meeting at the Waldorf-Astoria hotel, New York. M. C. Booze, 2202 Oliver building, Pittsburgh, is acting secretary.

Nov. 11-14—American Institute of Steel Construction. Annual convention at Hotel Greenbrier, White Sulphur Springs, W. Va., Charles F. Abbott is executive director.

Nov. 30-Dec. 4—American Society of Mechanical Engineers. Annual meeting in Engineering Societies' building, New York. Calvin W. Rice, 29 W. 39th street, New York, is secretary.

Dec. 9-11—American Mining congress. Twenty-eighth annual convention in Washington. J. F. Callbreath, 84 Munsey building, Washington, is secretary.

New Furnace Progresses

Work is proceeding rapidly on New England's blast furnace on the Mystic River, Everett, Mass., near Boston. The plate work is now complete on all the stoves and on the stack, and the brick work on both has been started. The steel bins are complete and the bridge is rapidly nearing completion. The structural steel is being furnished by McClintic-Marshall Co., Boston, the plate work by William B. Pollock Co., Youngstown, Ohio, the bridge by Mead-Morrison & Co., East Boston, and brick work by Shea-Whelpley & Co., Cleveland.

In August Argentina supplanted Australia as the leading foreign market for American cars. Total exports of automotive products from the United States during August were valued at $29,225,000.

British Welcome Orders From America

(*Concluded from Page* 1115)

Although little buying of foreign steel has been arranged lately, earlier business is reflected in the September imports in somewhat formidable totals. Steel billets totaled 53,128 tons, girders 9065, plates and sheets 12,793. Wire rods appear to be increasingly bought abroad, the figure for the month being 11,148 tons against 7476 tons a year ago. A large use of steel girders seems to be indicated by the importation of 9065 tons. The only striking decrease is under the head of scrap, imports of which totaled 3972 tons against 25,883 tons in September of last year. During the nine months the imports totaled 66,119 tons against 395,439 tons a year ago. The recent slight increases in scrap prices have been fairly maintained, and the low ranges of values lately prevailing are not thought likely to be repeated.

Galvanized sheets continue a strong market. The September exports totaled 51,310 tons, substantially on the same level as a year ago, and for the nine months the total was 523,201 tonos against 489,494 tons for the nine month last year. This is almost the only department showing an increase over that period, an important exception, however being wrought tubes, of which the nine months total was 137,407 tons against 122,311 tons last year.

French Syndicates Drop Price Control

PARIS, Oct. 14.—(*European Staff Service*)—Business is quiet, but prices are holding. Export trade is good. Since Oct. 1 the agreements of the various syndicates have dealt only with production, and prices are no longer controlled. Efforts are generally made to place orders in Germany on account of reparations according to the Dawes program. The immediate result of this is lack of big orders, and for export only.

Pig iron prices have been raised. Foundry pig iron 2.50 to 3 per cent silicon is quoted 340 francs ($16.50) f.o.b. Antwerp and basic bessemer is 320 francs ($15.50) both for export. In the domestic market no appreciable change in prices has resulted from the existing syndicate. It is generally believed that prices will go down on account of the decrease in the price of coke. There is no change in hematite, though imports of British hematite in France have increased.

Franc—$0.484

In the steel market producers are selling on the scale of prices fixed by the late syndicate, pending the scale to be arranged by the new syndicate. Basic bessemer blooms are quoted £4 7s 6d ($21.30) f.o.b. Antwerp; billets £4 11s ($22). Sheet bars are £4 13s ($22.40) f.o.b. Antwerp for export. It is to be noted that Belgian and French prices are the same for export. Merchant bars are quoted £5 6s ($25.60) for export, and about 585 francs ($28.30) in the domestic market. Rods are quoted £5 17s 6d ($28.50); beams, £5 ($24.30) f.o.b. Antwerp for export; wire rod £5 17s 6d ($28.50); hoops 800 francs ($38) for export.

French plates are offered for sale abroad at £6 2s ($29.80) f.o.b. Antwerp, the domestic prices being about 725 francs ($35.20). Sheets are quoted 875 francs ($42.02) for export, with galvanized fine gages 1700 francs ($82) to 2300 francs ($111) for export f.o.b. Antwerp. In the domestic market French galvanized sheets are quoted 1850 francs ($90).

German Position in Steel Is Perilous

BERLIN, Oct. 10.—(*European Staff Service*)—German output of crude steel for October has been maintained at the same rate as during September, 35 per cent. For the first time for about a year, figures of production of German iron and steel have been published by the Union of German Iron and Steel Industrialists. The details are shown in the following table, in metric tons:

	Pig iron	Crude steel
1913 (Reduced to new territory)	16,761,311	17,598,826
1923	4,936,340	6,305,250
1924	7,812,231	9,835,255
Monthly average		
1913	1,396,776	1,466,569
1925		
January	809,849	1,180,908
March	990,606	1,209,294
May	960,541	1,114,746
June	941,201	1,108,748
July	885,880	1,030,983
August	765,901	899,421
January-August	7,223,659	8,763,871

German output reached its minimum in 1923. Afterwards, owing to the Ruhr occupation, there was a continued increase up to March, 1925, when 71 per cent of the 1913 pig iron output and 82 per cent of the steel output were produced. Since that time production has steadily decreased, owing to the reduction in home and export sales, and the percentages in August were 55 and 61 per cent respectively. The average for the first eight months of the current year were 65 per cent of the 1913 pig iron output and 61 per cent of the 1913 crude steel production.

This reduced output is sold with difficulty, with the result that one producer after another is shutting down on the ground that present prices do not cover cost of production. The Thyssen Co. has given notice to a further 25 per cent of its unproductive workers and proposes to blow out all furnaces except three. The Bochumer Verein is working short time on the holiday shift basis and the same is reported from the Laurahutte. The Gutehoffnungshutte is considering blowing out one of its four furnaces, while the Baroper rolling mill has wholly shut down owing to reconstruction and will resume work at the beginning of next year. Production of the sheet rolling mill of the Hennigsdorf Co., controlled by the German General Electric, is to be reduced to about 50 per cent of capacity, representing a total of 3000 tons a month. As a rule the policy of shutting down German works is progressing, while the bad financial situation of the producers increase at the same rate. The big Stumm combine has already been compelled to ask banks for financial aid, and the Rombacher Mining Co. is in the same unfortunate position. The financial situation of Krupps, which was also very stringent, has been alleviated by the sale of the coal mines, "Norddeutschland" to the French de Wendel combine.

President Klockner of the Klockner combine recently stated that the actual situation on the German iron market is very depressed, and he does not expect improvement earlier than the beginning of next year. The formation of the new selling unions has not brought amelioration of the domestic market as traders have still considerable stocks on hand which they are selling at low prices to get ready money. Consumers, on the other hand. are reluctant to buy owing to shortage of capital.

Export business continues slack, although foreign sales increased from 264,434 metric tons in July to 291,848 tons in August, mainly as the result of increased shipments of pig iron, chiefly to the United States, of bars (mainly to Holland and Denmark), and of scrap (principally to Upper Silesia.) Resumption of work by Belgian producers had a bad influence on German exports. owing to sharp competition from that quarter. Nevertheless, several thousand tons of bars for export have been sold at £5 8s, especially to Japan. Export business in galvanized goods and black sheets sold to the Argentine Republic reached fair totals. Considerable sales of galvanized sheets, 24 gage, have been made at £17 10s to the Argentine, while black sheets, 24 gage, have been sold at £12 in large quantities to Chile and to the Argentine Republic. Medium sheets have been shipped to these destinations at £6 17s 6d.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

BROWN EQUIPMENT CO. and Fayro Machine & Equipment Co. both of Johnstown, Pa., have been merged to form the Brown-Fayro Co. B. F. Faunce has been elected president, H. B. Brown vice president and general manager, James C. Ayres manager of sales, E. L. McIntyre secretary and John C. Cosgrove treaosurer. The Fayro company was organized in 1922 to repair breakdowns in mines and mills in the Johnstown territory. It added new lines and developed its structural shops to a position of importance. Brown Equipment Co. was formed at Cherrytree, Pa., in 1916, moving to Johnstown in 1922. It manufactures an electric hoist and its output includes also mine cars, car wheels and car parts. It operates a large jobbing foundry. The present plants will be continued in operation.

* * *

PETROLEUM Iron Works, Sharon, Pa., has started production of hot air furnaces, the first time this class of fabrication has been undertaken there. The first shipment of the product has been made.

* * *

A DOUBLE electric japanning furnace in the works of the L. J. Mueller Furnace Co., Milwaukee, was demolished by an explosion on Oct. 21, causing a loss of $12,000 but no injuries. Repairs and replacements are now being made.

* * *

EQUIPMENT Mfg. Co., Cleveland, which recently took over the Craftsman Tool Co., Conneaut, O., has constituted this the Craftool division of the company and has appointed C. G. Kellogg to take charge of the sales and development of this division. Manufacture of continuous rotary millers will be continued.

* * *

AMERICAN ENGINEERING CO., Philadelphia, manufacturer of electric hoists, stokers, ammonia compressors and other machinery, announces that its interests in Canada have been taken over by the Affiliated Engineering Companies Ltd. with headquarters in the Southern building, Montreal. This company has been formed by the merger of the Taylor Stoker Co. Ltd., Montreal, and the Cleaton Co. Ltd. M. Alpern president of the American Engineering Co., is chairman of the board and F. S. B. Heward is president.

* * *

INDICATIVE of better conditions in the farm implement, machinery and tractor business in America as well as foreign countries is the fact that the J. I. Case Threshing Machine Co., Racine, Wis., is making a large number of export shipments. South American business is especially increasing, it is stated, although sales in Europe have recently taken on a much larger volume than perhaps at any time since the close of the war.

* * *

ALUMINUM Co. of Canada, subsidiary of the Aluminum Co. of America, will install 10 unusually large turbines at Chipsaw, Que., where the new plant is under construction. E. S. Fiske, vice president, states the plant probably will be completed by the end of 1926. The turbines and generators are estimated to cost $11,000,000. Most of the equipment for the plant is expected to be placed with Canadian interests as concessions for water power privileges in the Saguenay river were granted on the implied understanding everything possible would be placed in Canada.

* * *

BLACKMER ROTARY PUMP CO., 1809 Century avenue, Grand Rapids, Mich., A. B. Klise, president, has completed its new plant and general offices have been removed from Petoskey, Mich. Part of the plant equipment also has been removed and new machinery added. A new foundry will be built adjoining the plant but until this is completed the old foundry at Petoskey will supply castings. Removal is being accomplished without loss of production as plans were made to continue work at the plant as the new was put into operation. Removal to Grand Rapids was undertaken to obtain better transportation facilities. George C. Schaffer is general sales manager.

Structural Steel Output Holds at High Level

Washington, Oct. 27.—Bookings of fabricated structural steel in September were estimated at 232,000 tons, or slightly above the 229,100 tons of August, according to reports to the department of commerce from 173 companies with 240,975 tons monthly capacity, and reported summarily in IRON TRADE REVIEW, Oct. 22. Actual bookings by those companies were 192,269 tons, or 80 per cent of capacity. Computed shipments for September totaled 237,800 tons, or 82 per cent of capacity, the same level as August. Indications are that 1925 will be a high mark in structural bookings. Further comparisons by months follow:

	Actual tonnage booked	Per cent of capacity	Computed tonnage booked	Computed tonnage shipped
1924	1,003,856	....	1,148,400	1,139,700
Total (9 mos.)	.....	....	1,703,200	1,783,500
Sept.	167,027	65	188,500	211,700
Oct.	166,367	65	188,500	220,400
Nov.	213,247	83	240,700	185,600
Dec.	201,090	79	229,100	182,700
1925				
Jan.	147,079	57	165,300	171,100
Feb.	149,489	58	168,200	182,700
March	177,154	69	200,100	217,500
April	197,813	78	255,200	223,300
May	176,886	69	200,100	226,200
June	219,561	87	252,300	229,100
July	*209,663	83	240,700	246,500
August ..	**198,706	79	229,100	237,800
Sept.	***192,269	80	232,000	237,800
Total (9 mos.)	1,668,620	....	1,943,000	1,972,000

*Reported by 189 companies with 253,550 tons capacity. **Reported by 186 companies with 240,975 tons capacity. ***Reported by 173 companies with 240,975 tons capacity.

To Start New Furnace At Granite City

St. Louis, Oct. 26.—A further step in the reorganization of the St. Louis Coke & Iron Co. was the sale of the property at Granite City, Ill., to the bondholders for $3,000,000. Officials announced after the sale that within 20 days work would begin on enlargements and betterments to cost approximately $3,000,000, including a new blast furnace of 500 tons daily capacity, which will bring output to 1000 tons daily. The company cokes Illinois coal by the Roberts process and utilizes a part of its output for producing pig iron. One of the main troubles which resulted in the receivership was that the company in the past was unable to dispose of its surplus coke. This situation, it is hoped will be eliminated by the additional blast furnace.

Obituaries

HARRY KENNEDY, prominent blast furnace operator, died Oct. 20 at Sheridan, Pa. He was born in Washington county, Pa., April, 1863. Mr. Kennedy was singled out first by Charles M. Schwab for his executive ability, and made superintendent of the Carnegie Steel Co. interests. He was in charge of operations later of the Iroquois stack of the Rogers-Brown Iron Co. at Chicago. Probably his greatest achievement was the erection and operation of a blast furnace for the Nickopol Mariople Mining & Metallurgical Co., in Russia. Upon his return to the United States he took charge of the Clairton furnaces of the Carnegie Steel Co. Later he joined the Donner Steel Co. to manage its Buffalo stacks. He left the Donner company shortly afterward to engage in the manufacture of ferromanganese for the Lavino Furnace Co., Philadelphia. Mr. Kennedy was a member of the American Iron and Steel institute. He was a brother of Reid Kennedy, president of the Monongahela Trust Co., Judge A. C. Kennedy, DeKalb, Ill., and Thomas Kennedy of DeKalb. He was a cousin of Julian Kennedy, prominent consulting engineer.

* * *

John J. Plath, died in Miami, Fla., Oct. 16. Until July 1 he had been director of sales of the Chrysler Sales Corp., affiliated with the Chrysler Motor Car Co.

* * *

L. E. Brayton, for 14 years on the sales staff of Manning, Maxwell & Moore, Chicago, and recently in charge of sales to western railroads, died at Chicago, Oct. 22.

* * *

Edmund Paulsen, for 24 years with the Little Red Wagon Mfg. Co., Omaha, Neb., Stroud & Co., successors, died Oct. 18 at the age of 63.

* * *

Thomas F. Manville, chairman of Johns-Manville Inc., died suddenly in New York, Oct. 19, of heart disease. He was 63 years of age. He was identified with numerous other activities.

* * *

John I. Beggs, president of the Milwaukee Rolling Mill Co., Milwaukee, subsidiary of the Inland Steel Co., Chicago, died Oct. 17 in the former city, aged 78. He was a multimillionaire industrialist and capitalist and was interested financially in many manufacturing companies.

* * *

Charles Keeler Winslow, a statistician for the United States Steel Corp., 71 Broadway, New Work, died of heart disease at his home in upper Montclair, N. J., Oct. 21. He was 64 years of age.

* * *

Harrison F. Wilmot, metallurgist with the Ladish Drop Forge Co., Milwaukee, died Oct. 22 from typhoid fever after a brief illness. He was born in Milwaukee in 1904 and was a graduate of Marquette university, Milwaukee.

* * *

Edward S. Page, philanthropist and financier, died in Cleveland, Oct. 26 at the age of 83. He was born in Wooster, O., and came to Cleveland when four years old. He served in the 150th Ohio infantry in the Civil war. At his death Mr. Page was a director of the Cleveland Trust Co., president of the Cleveland Wire Spring Co. and vice president of the National Refining Co. Mr. Page had been secretary of the Cleveland Rolling Mills Co. until that plant was purchased by the American Steel & Wire Co. in the nineties and he later formed the wire spring organization.

* * *

Thomas A. Coleman, president of the Madison Kipp Co., Madison, Wis., manufacturing oiling devices for machine tools, tractors, oil cups, grease cups, etc., died Oct. 19 at the age of 67 years. He was born in Oshkosh, Wis., and engaged in the farm machinery trade, being appointed manager of the McCormick Harvester Co. interests at Madison in 1895. Later he went to the International Harvester Co. headquarters in Chicago, retiring in 1919 but being elected a vice president. He became manager of the Kipp Lubricator Co. in 1905 and served as president until his death.

* * *

Benjamin Atha, pioneer steel manufacturer of Newark, N. J., and for many years a prominent banker in that city, died Oct. 24 there, aged 82 years. His first association in the iron and steel industry was with his father, who with William Prentice in 1864 organized Prentice, Atha & Co. The name was changed in 1871 to Benjamin Atha & Co. Later the company moved its properties to Harrison, N. J., and John Illingworth was taken into the business. It then was reorganized as Benjamin Atha & Illingworth Co., and about 25 years ago was absorbed by the Crucible Steel Co.

Bethlehem Steel Orders Exceed Shipments

The immediate outlook for the iron and steel industry was painted in cheerful colors by President Eugene G. Grace of the Bethlehem Steel Corp. in a statement accompanying the company's report of earnings for third quarter. Bethlehem is receiving orders for steel products in excess of current shipments, Mr. Grace said.

For the three months ended Sept. 30 Bethlehem reports a net income of $2,090,659 against $3,423,190 in second quarter and $102,167 in third quarter of 1924. Earnings after deducting all charges and preferred dividends, amounted to 56 cents a share on the common stock against a deficit of 54 cents a share on the common stock in the third quarter of 1924. Total earnings for the first nine months amounted to $3.53 per share as compared with $1.48 per share for the first nine months of 1924.

During the third quarter operations averaged 59.7 per cent of capacity compared with 42.4 per cent during the same period one year ago. Current operations are at the rate of 80 per cent of capacity, according to a statement by President Grace. The value of orders on hand as of Sept. 30 was $46,509,167 compared with $50,342,813 at the end of the preceding quarter and $49,971,161 the same date one year ago. The comparative income account follows:

	Third quarter 1925	Second quarter 1925	Third quarter 1924
Total net earn.	$8,337,762	$9,708,528	$6,495,731
Less interest	3,262,116	3,301,769	3,466,107
Balance	$5,075,646	$6,406,759	$3,029,624
Less depreciation	2,984,987	2,983,569	2,927,457
Net income	$2,090,659	$3,423,190	$ 102,167
Less dividends on preferred	$1,075,774	$1,075,791	$1,075,129
Surplus	$1,014,885	$2,347,399	$ *972,962

*Deficit.

According to President Grace, Bethlehem undertook a $80,000,000 construction program at the time of acquiring the Lackawanna, Cambria and Midvale properties. This program is nearing completion and when the new units become productive they will add substantially to the company's earning power.

October Warehouse Tonnage Heavy

Prices Continue Steady and Firm—Sheets Stiffen in East

VOLUME of warehouse trading continues high and October will be one of the best months of the year. Prices are firm and in some centers tend to stiffen. Better mill backlogs are aiding the warehouse situation.

Jobbing demand at New York has taken a decided turn for the better. One leading jobber reports this week the best in 1925. Improved position of the mills is the principal contributing factor. Sheets are stiffening, the mininum having been raised $5 a ton in the last week.

Shading continues to feature warehouse trading at Philadelphia in the steel bar market, although the majority of business continues to bring 3.20c, base. The volume of sales is good. Other prices are firm.

Volume of incoming business to Pittsburgh warehouses still is heavy. October is the best month of the past four or five in orders. Prices are unchanged but firm. Concrete bars are selling at 2.50c Youngstown and 2.50c to 2.60c Pittsburgh.

While demand for warehouse products at Cincinnati is confined to small lots mostly, the volume of business in the aggregate is satisfactory. The movement of bars and structurals is heaviest, although plates and sheets are more active. Nail and wire inquiry is heavier. Prices are firm.

Common wire nails have been reduced by Chicago warehouses from $3.15 to $3.05 per 100 pounds. Cement coated nails have been cut from $2.25 per keg to $2.05.

St. Louis warehousemen report the past few days have been marked by a slight slowing down in general buying, noticeable particularly in plates and sheets. Buyers are hesitating. Total volume continues well ahead of the corresponding period a year ago. Prices are steady.

Demand for iron and steel warehouse products at Detroit is improving. Operators report orders are better than in September and far ahead of those of October, 1924. Demand is being strengthened by the difficulty of many manufacturers in obtaining prompt mill deliveries. Gradual slowing down in the automobile industry is expected to remedy this shortage in the near future. Prices are unchanged and firm.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.15c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	2.85c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c to 2.10c
Cincinnati	3.30c
Cleveland	2.85c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.50c to 2.60c
Youngstown	2.50c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Pittsburgh	3.00c
Portland	2.85c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Philadelphia, 3/16-inch	3.00c to 3.40c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.00c
Detroit	3.65c
Los Angeles	3.70c
New York	3.89c
Philadelphia	3.35c
Portland	4.25c
San Francisco	3.70c
Seattle	4.25c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	4.95c
Buffalo	4.40c
Chicago	4.00c
Cincinnati	4.55c
Cleveland	3.80c
Detroit	4.25c
Los Angeles	4.65c
New York	4.15c to 4.35c
Philadelphia	5.35c
Portland	5.25c
San Francisco	4.65c
Seattle	5.25c
St. Louis	4.50c
St. Paul	4.25c

NO. 28 GALVANIZED SHEETS

Boston	6.00c
Buffalo	5.45c
Chicago	5.00c
Cincinnati	5.65c
Cleveland	4.95c
Detroit	5.25c
Los Angeles (corr. 26 ga.)	5.75c
New York	5.15c to 5.35c
Philadelphia	5.35c
Portland	5.75c
San Francisco	5.75c
Seattle	6.25c
St. Louis	5.50c
St. Paul	5.25c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	3.95c	4.45c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.80c	4.30c
Detroit	3.75c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	3.90c	4.40c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	3.75c*	.....
Seattle	4.75c*	.....
St. Paul	4.05c*	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.15c
Buffalo	6.65c
Chicago	7.15c
Cincinnati	7.15c
Cleveland, over 500 pound lots	5.95c
Detroit	6.05c
New York	6.10c
Philadelphia	6.10c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL
New York, duty paid

Swedish hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE
Discounts from warehouse, New York City
Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6 inch lap	—42	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
⅛ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 6	+14
2½-inch lap	— 9	+ 9
3 to 6-inch lap	—11	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

BIRMINGHAM, ALA.—American Cast Iron Pipe Co. will have its centrifugal pipe shop completed and in operation March 1. A cupola plant with seven cupolas is being erected to supply old and new shops.

BIRMINGHAM, ALA.—Standard Gas Products Co. is building an oxygen plant at Fairfield on property of the Tennessee Coal, Iron & Railroad Co., to supply plants of the latter company.

BIRMINGHAM, ALA. — American Iron Works, G. C. Illingworth president, 1025 Forty-third place has been incorporated with $100,000 capital and will take over the plants of the North Birmingham Forge Co., and the Daniel Ornamental Iron & Wire Corp., both plants to be enlarged and additional equipment installed for production of industrial forgings and fabricated iron and steel.

OAKLAND, CALIF.—California Steel Products Co., 452 Bay street, San Francisco, has bought a site of 4½ acres on which to build a plant for the manufacture of refrigerating machinery.

OAKLAND, CALIF.—Miller Auto Bed Co., 1112 East Twelfth street, will build a planer 60 x 125 feet for manufacture of a folding bed for automobile use and will require punches, lathes, motors, spray and enamel baking equipment.

SACRAMENTO, CALIF.—Sierra Mfg. Co., is seeking a site for a foundry, machine shop, assembling plant and other structures for the manufacture of stoves and other products. George W. Peltier, Farmers & Mechanics bank, is president.

SAN FRANCISCO.—California Steel Products Co., 452 Bay street, has bought a site at Oakland and will build a plant for the manufacture of boilers and other plate products.

SAN FRANCISCO.—California Steel Products Co., 452 Bay street, has bought a tract of four acres in Oakland, Calif., and will build a plant. W. E. Kettering and E. P. McCann head the company.

HARTFORD, CONN.—Skayef Ball Bearing Co. will build a 1-story addition at 330 New Park avenue.

HARTFORD, CONN.—New England Sheet Metal Works Inc. has been formed with $26,000 capital by Israel Fashinsky, Rose Fashinsky and Margaret Pilling, all of Hartford.

NEW BRITAIN, CONN.—B. Jahn Mfg. Co., manufacturer of dies and tools, will build a 2-story addition 40x82 feet.

NORWALK, CONN.—Bennett Wire Co., Water street, has had plans made for two additions, 30x42 feet and 32x34 feet.

PUTNAM, CONN.—Putnam Foundry & Machine Co. is planning to rebuild the burned portion of its plant.

TERRYVILLE, CONN.—The Eagle Lock Co. is building a 6-story building to house its various shipping operations.

TORRINGTON, CONN.—Fitzgeralds Mfg. Co., North Main street, is building a 1-story addition for the production of automobile horns and other accessories. P. J. Fitzgerald is president.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

WILMINGTON, DEL.—Plans have been completed by Clarence E. Wunder, Philadelphia, for a $200,000 factory building, four stories, for the Toppis Co.

WILMINGTON, DEL.—J. S. Coffin Jr. Co. has been incorporated with $3,000,000 capital to manufacture engines and locomotives by T. L. Croteau and associates, Wilmington.

WILMINGTON, DEL.—C-S Engineering Co. has been incorporated with $1,000,000 capital to manufacture and install machinery by T. L. Croteau and associates, Wilmington.

JACKSONVILLE, FLA.—Otis Elevator Co., E. P. Hoffman manager, 210 East Forsyth street, will build a plant at Liberty and Monroe streets for repair of elevators.

CHICAGO—Illinois Nail Co., 826 Dix street, J. B. Sherlock president, is having plans made for a 1 and 2-story plant 100 x 160 feet at Lessing street and Northwestern railroad.

CHICAGO—Link-Belt Co., 2300 West Pershing road, Charles Piez president, has let contract to the H. K. Ferguson Co., Cleveland, for a 1-story addition, 120 x 260 feet.

CHICAGO. — McClintic-Marshall Co., 38 South Dearborn street, will build a 1-story addition 100x200 feet at its shop 7769 Dante avenue.

CHICAGO.—Edward Carr Co., 224 West Huron street, has let a contract to William Morrise, 30 North LaSalle street, for a 2-story plant 50x50 feet at 937 West North avenue.

CHICAGO—William O. Olson, president of the Eagle Tank Co., 2450 North Crawford avenue, has bought a site 209 x 297 feet at Kildare and Wellington streets on which he will build a plant in 1926 for his concern.

CHICAGO—Wolff Range Boiler Mfg. Co., 2045 Fulton street, has bought the former Brady foundry at Forty-fifth street and South Western boulevard and will occupy it as soon as alterations and additions are made.

CHICAGO.—C. W. Greenfield, 117 North Jefferson street, has let contract to Rosenberger, Peterson & Leaf, 5153 North Clark street, for a 1-story factory 34x126 feet at 1539 Dayton street.

CHICAGO.—Majestic Lamp & Shade Co., 1044 West Van Buren street, has been incorporated with $20,000 capital to manufacture lamps and shades by A. E. Brosilaw, E. F. Wambold and E. A. Ginter.

CHICAGO—Plibrico Jointless Fire Brick Co., Kingsbury street, has awarded a contract for a 2-story factory 76 x 131 feet for the manufacture of firebrick, to E. W. Sproul & Co., 2001 West Pershing road.

CHICAGO—Automatic Engineering Co., 340 East Seventy-fifth street, has been incorporated with $1000 capital to manufacture oil burners and furnaces by J. C. Laws, James T. Sweeney and Jay Stough. Stough, Carolan, Loy, 10 South LaSalle street, are attorneys.

CHICAGO — International Steam Motors Corp., 310 South Michigan boulevard, has been incorporated with $100,000 capital to manufacture tools, machinery and implements by K. Storm, M. McGarry and L. Durkin. F. F. & J. V. Norcross, 208 South LaSalle street are correspondents.

CHICAGO—Fechheimer Iron & Steel Co., 200 Jackson boulevard, has been incorporated with $2000 capital to manufacture and deal in iron, steel, railway supplies and machinery by Ethel Fechheimer, David Fechheimer and Adolph S. Lowenthal. Benjamin O. Morris, 1001 Conway building, is correspondent.

CHICAGO—Marquette Iron Works, 166 West Jackson boulevard, has been incorporated with 100 shares no par value to manufacture iron, steel, manganese, coke, copper etc. by C. J. Rundquist, M. A. Rundquist and F. T. Peterson. McKinley & Price, 166 West Jackson boulevard, are correspondents.

CHICAGO—Simms Magneto Service Co., 144 West Eighteenth street, has been incorporated with $20,000 capital to manufacture dynamos, generators and other electrical devices by Alfred Magnusson, Milton Levinsohn and Leslie Steinberg. Brown, Fox & Blumberg, 2059 Illinois Merchants Bank building, are correspondents.

GALESBURG, ILL.—Zimmer Tool Co., 366 Ferris place, has been incorporated to manufacture special tools, dies and jigs by H. A. Zimmer, J. D. Mills, H. A. Tedman, T. D. Earnest and Charles Martin. Bert E. McLaughlin, Peoples Bank building, Galesburg, is attorney.

HARVEY, ILL.—Ingalls-Shepherd division of the Wyman-Gordon Co. will build a 1-story addition to its forge shop.

CONNERSVILLE, IND.—Stant Machine Co., Ivan Stant president, is having plans made for a 1-story plant 41x92 feet.

CONNERSVILLE, IND.—Indianapolis Lamp Co., Western avenue and Nineteenth street, is planning an addition to its plant. Ford, Bacon & Davis, 115 Broadway, New York, are engineers.

FORT WAYNE, IND.—Defiance Automatic Screw Co. has bought a site and will build additions to triple its capacity.

HAMMOND, IND.—Standard Steel Car Co., J. F. Drake president, will build a 1-story addition 80 x 334 feet.

INDIANAPOLIS, IND.—Indianapolis Plating Co., 635 Kentucky avenue, will build a 1-story plant at 425 West Vermont street and remove its business there.

NEW ALBANY, IND.—Coleman Bros. Mfg. Co. has been incorporated with $15,000 capital to manufacture gasoline engines and agricultural machinery by Charles J. Coleman, Walter H. Coleman and Jesse E. Coleman.

WATERLOO, IOWA.—Moors Mfg. Co., manufacturer of sheet metal products and heat-

ers, will rebuild its burned plant, two buildings 50x60 feet and 50x100 feet.

NEW ORLEANS, LA.—American Elevator & Electric Co. has been incorporated with $30,000 capital by Gabe Correjolles president, 926 Cambronne street.

BALTIMORE.—American Supply Co., 213 North East street, M. Gilton manager, is building a 1-story plant 80x100 feet, general contract to J. O. Blair, 3613 Grantley road.

BALTIMORE, MD.—General Refractories Co., Seventh and Chesapeake streets, Brooklyn, a suburb, is having plans made for a 2-story plant 40 x 55 feet.

BEDFORD, MASS.—Arabian Mfg. Co., manufacturer of wrought iron goods, was burned recently will loose much of equipment. Rebuilding will be done at once.

BOSTON—The F. A. Dolan Co., heating and ventilating apparatus, has been incorporated with $50,000 capital by Patrick A. Dolan, Edwin D. Farmer, William T. Riley, and Frederic D. Starrett, all of Worcester, Mass., and Theodore Lussier, Lowell, Mass.

BOSTON,—Thompson Wire Co., 41 Mildred avenue, Dorchester, is building a 1-story plant 45x65 feet.

BOSTON—The United States Steel Wool Co. has been incorporated for $100,000 by Samuel L. Sneierson, Roxbury, Mass., Bessie Meltzer, Malden, Mass., and Richard E. Mudgett, Cambridge, Mass.

BOSTON.—Pneumatic Scale Corp., Norfolk Downs, has bought the business and plant of the Standard Automatic Machine Co., Rochester, N. Y., and will extend its works here to accomodate business of the Rochester plant, which will be removed here. Mahlon H. Gregg, secretary and treasurer of the Rochester company, will become an officer of the purchasing company.

CAMBRIDGE, MASS.—Metropolitan Auto Body Shop Inc. has been formed with $25,000 capital by Eric W. Johnson, Evan M. Johnson, both of Waltham, Mass., and George J. Beehner of Cambridge, Mass.

FRAMINGHAM, MASS.—Contract has been awarded for a factory for the Manufacturing Equipment & Engineering Co. here.

GLOUCESTER, MASS.—Work has started on a boiler house addition for the Gloucester Electric Co.

LYNN, MASS.—The Munroe Hardware Co. has been incorporated with $20,000 capital by Hyman Hershoff, Isadore Sampler, Boston, and Benjamin Sampler, Lynn.

NEWTON, MASS.—The Washburn-Stevens Co., automobiles, air and sea planes, has been incorporated with $50,000 capital by Andrew Washburn, Brookline, Mass., Harry E. Stevens,

Industrial Business Changes

PAGE & LUDWICK, 14 East Jackson boulevard, Chicago, have been made representatives in Illinois for the Magnetic Mfg Co., Milwaukee, and the Thomas Flexible Coupling Co., Warren, Pa. These lines are in addition to the Milwaukee Electric Crane & Mfg. Co., Milwaukee, and the H. D. Conkey Co., Mendota, Ill., Page & Ludwick representing the former in the sale of electric traveling cranes and the latter in hand power cranes.

* * *

New York Shipbuilding Corp., New York, has changed its name to American Brown Boveri Electric Corp.

* * *

Foote Bros. Gear & Machine Co., Chicago, has appointed George Roberts, 576 Montclair street, Detroit, sales representative for that territory.

* * *

Pneumatic Scale Corp., Ltd., Boston, has bought the Standard Automatic Machine Co., Rochester, N. Y., and will remove the business to the former city.

* * *

H. K. Ferguson Co., Cleveland, industrial engineer, has opened a branch office at Birmingham, Ala., in charge of C. A. Harwick, for several years in the home office.

* * *

Lake Erie Bolt & Nut Co., Cleveland, has appointed M. Fuhrer, 447 Greenwich street, New York, its sales representative for the metropolitan district.

* * *

William Leard Co., Inc., New Brighton, Pa., has appointed George H. Cameron its sales representative in New England. His offices are at 683 Atlantic avenue, Boston.

* * *

Railroad Supply Co., 203 South Dearborn street, Chicago, has bought the business of the Bryant Zinc Co., Ohio and Orleans streets, and will continue to operate it at that location.

* * *

New Process Twist Drill Co., Taunton, Mass., has appointed the Tool Equipment Sales Co., C. B. Cole, president, 18 South Clinton street, Chicago, as exclusive factory representative. A complete stock will be carried.

* * *

Schwab Boiler & Machine Co. is the new name adopted by the Philip Schwab Co., Milwaukee, which has been consolidated with the Schwab-Lezotte Boiler Works, Milwaukee. Its plant for the manufacture of boilers and heavy machinery and heavy forgings, is at Sixteenth and Canal streets.

* * *

Climax Engineering Co., Clinton, Iowa, has appointed Coast Machinery Corp., 829 Folsom street, San Francisco, its sales agent for California. Other new sales representatives of this company are: George W. Whitehead Co., 61 The Terrace, Buffalo, N. Y.; Edward C. Dingman, 1005 Keefer building, Montreal; Advance Contractor Repair Co., 1332 West Lake street, Chicago; Mine & Smelter Supply Co., Salt Lake City; McDonald & Burgman, Jacksonville, Fla.

* * *

American Engineering Co., Philadelphia, announces the following recently appointed representatives for the sale of its hoist: All Steel Equipment Co., 86 State street, Albany, N. Y.; American Machinery & Supply Co., 1113 Howard street, Omaha, Neb.; Ambler & Riter, Kearns building, Salt Lake City, Utah; Dravo-Doyle Co., 749 Leader-News bldg., Cleveland, and 705 Merchants Bank building, Indianapolis, Ind.; Factory Supply Co., Inc., 2122 Avenue D, Birmingham, Ala.; C. Fuson Co., 404 Fidelity Bank building, Memphis, Tenn.; Gibbons & Gordon, Inc., 534 Canal street, New Orleans, La.; Industrial Products Corp., 1205 Chamber of Commerce, Pittsburgh; Menner & Kimball, Syndicate Trust building, St. Louis; Standard Steel & Supply Co., Twenty-ninth street and C. & O. railroad, Ashland, Ky.; C. Turner & Co., Power building, Chattanooga, Tenn.; S. R. Vanderbeck, 20-22 South Fifteenth street, Philadelphia; Wylie Brothers, 511 North Main street, Oklahoma City, Okla. A representative of the hoist department also has been added to the staff of the American Engineering company's Chicago office, 1401-1402 Marquette building.

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.00 to 10.00
Algerian low phosphorus, 52 to 54 per cent	9.00 to 10.00
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.50 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained

Brazilian, minimum 47 per cent.	nominal
Indian minimum 47 per cent	nominal
Caucasian, 53 to 55 per cent	
....Washed, 43 to 45 cents c.i.f. tidewater	

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.50 to 17.50

Boston, and Stephen H. Roberts, Newton.

NEWTON, MASS.—Work has started on a machine shop for the Newton Machine Screw Co. here.

SPRINGFIELD, MASS.—John Swaine Associated Iron Works Inc., 26 Cypress court, will build a 1-story addition to its plant.

WAKEFIELD, MASS.—Subcontracts have been awarded for a steel and concrete 1-story 32 x 42-foot factory and boiler room for the Neveroil Bearing Co.

WESTFIELD, MASS.—Plans are being prepared for a machine shop here for the H. B. Smith Co.

BATTLE CREEK, MICH.—Burns Brass Foundry Co. is making plans for building a plant in this city.

BRIGHTON, MICH.—Brighton Mfg. Co. has been incorporated with $75,000 capital to manufacture domestic water filters by Charles E. Howland, Detroit; Thomas Leith, Brighton; William J. Kilpatrick, 3903 Quincy avenue, Detroit.

CHELSEA, MICH.—Chelsea Screw Co., manufacturer of screw machine products has let a contract to the Austin Co., Cleveland, for an addition 40 x 142 feet and two connecting buildings 28 x 35 feet and 35 x 40 feet. (Noted Oct. 22.)

DETROIT—Reliable Tool & Die Co., George Langtry manager, 734 Mt. Elliott street, will build a 1-story addition.

DETROIT—Michigan Steel Tube Products Co., C. E. Miller president, has completed an addition to its plant which will increase capacity 25 per cent.

DETROIT—Brenkert Light Projection Co., Karl Brenkert, secretary and treasurer, 49 Cortland street, is building a 2-story mill building 70 x 100 feet.

DETROIT—Pelton & Crane Co. has been incorporated with $50,000 capital to manufacture electrical specialties by J. A. Hand, Harold W Houghton and Chauncey R. Pelton, 632 Harper avenue.

DETROIT—Detroit Conveyor & Machine Co. has been incorporated with $10,000 capital to manufacture and install conveyors, elevators and handling machinery by Arthur Anderson, Clyde B. Craft and William H. Burley, 2505 Garland avenue.

GRAND RAPIDS, MICH.—American Brass Goods Co. is building the first unit of a new plant here.

KALAMAZOO, MICH.—American Appliance Co., Inc., recently incorporated, will start production shortly of automatic door controls for garages and other structures.

LANSING, MICH.—Olds Motor Works is placing orders for equipment to double its capacity for 1926 production.

LANSING, MICH.—Fisher Body Corp. is installing additional ovens as present equipment operating 24 hours per day is not equal to demand for its product.

MONROE, MICH.—Monroe Auto Equipment Co. is making plans to rebuild its burned plant and install much new equipment.

SAGINAW, MICH.—Saginaw Products Co., J. H. Dwight general manager, North Hamilton and Monroe streets, will build a 1 and 2-story foundry, the Auston Co., Cleveland having the general contract.

OWENSVILLE, MO.—All-Locking Zinc Shingle Mfg. Co., Joseph T. Tate secretary, will build a 1-story factory 50x155 feet.

ST. LOUIS.—Baker-Lee Ice Machine Co. of Missouri has been incorporated to manufacture refrigerating machinery by John F. Hoffman, 7328 Richmond place, and associates.

ST. LOUIS.—A. J. Lindeman Co., has has been incorporated with $50,000 capital to manufacture stoves and other heating apparatus by A. J. Lindeman and Arthur E. Miller, 604 Carleton building.

ORANGE, N. J.—A company is being organized by J. R. Monroe, president of the Monroe Calculating Machine Co., 555 Mitchell street, and E. E. Britten Jr., who will be president and vice president, to manufacture check protecting machines and parts. A plant has been leased at South Jefferson and Mitchell streets and will be equipped for production.

HOBOKEN, N. J.—Atlas Winding Co., 1421 Adams street, will build a 1-story addition.

NEWARK, N. J.—Commercial Auto Hardware Co. has been incorporated with $125,000 capital by William J. Browne, Catherine C. Browne of Irvington and George F. Browne of Brooklyn. E. R. McGlynn, Newark, is attorney.

BROOKLYN, N. Y.—Albert Pipe & Supply Co. is making additions to enlarge its capacity and will install two 40-foot span electric traveling cranes in its yard.

BUFFALO, N. Y.—Star Laundry Machine Co. has been incorporated with $25,000 capital to manufacture laundry machinery by J. Eckhard, C. Weiffenbach and L. E. Weiffenbach. J. E. Selkirk, Buffalo, is attorney.

BUFFALO, N. Y.—Houde Engineering Corp., 1392 West avenue, manufacturer of automobile equipment, will build a 1-story addition from plans by G. Morton Wolfe, architect, 1377 Main street.

MT. VERNON, N. Y.—Eagle Bronze Works has been incorporated with 1500 shares at $100 each and 5000 common no par value by R. L. Gulatsi, L. J. Gulatsi and J. Fesler. S. Weiss, 305 Fifth avenue, is attorney.

NEW YORK—Swol's Iron Works has been incorporated with $20,000 capital by S. Wolis, and E. Endlich. A. Gross, 261 Broadway, is attorney.

NEW YORK—Plusacopy Corp. has been incorporated with $20,000 capital to manufacture duplicating machinery by H. A. Irwin, J. S. Simmons and F. R. Shalitt. S. A. Langfur, 154 Nassau street, is attorney.

NEW YORK—Snap-Tite Clamp Co. has been incorporated with $50,000 capital to manufacture hardware specialties by M. Glaser, W. H. Mumme and V. Sence. I. J. Palestine, 415 Lexington avenue, is attorney.

NEW YORK—Coon-Way Machine Co. has been incorporated with 400 shares no par value to manufacture printing press devices by J. C. Coon, J. Wagner and H. P. Bender. P. Allen, 60 Wall street, is attorney.

NEW YORK—Boretest Engine Co. has been incorporated with $10,000 capital to manufacture engines by J. G. Theban, S. G. Theban and J. L. Gunning. C. F. Kelley, 140 Nassau street, is attorney.

NEW YORK—Perfection Shortening Machine Corp. has been incorporated with $220,000 capital to manufacture cooking machinery by R. Smith, A. Emms and B. G. Worth. Wilson & Wilson, 149 Brodaway, are attorneys.

NEW YORK—Reliance Refining Co. has been incorporated with $25,000 capital to refine metals by W. Cohen, I. Abramson and L. Abramson. M. Fruitstone, 287 Broadway, is attorney.

NEW YORK—Independent Refractory Engineering Co. has been incorporated with $25,000 capital to manufacture hot water boilers by D. P. Sammon, J. F. Sammon and E. Nesbit. Smith, Reller & Griffin, 44 Court street, are attorneys.

NIAGARA FALLS, N. Y.—Chisholm-Ryder Co. has been incorporated with 100 shares no par value to operate a machine shop by S. M. Ryder, F. P. Ryder and W. A. Chisholm. H. A. Constantine, Niagara Falls, is attorney.

AKRON, O.—Monarch Marking System Co., Fred Krohnle, manager, 216 South Torrence street, will build a 3-story addition 65 x 108 feet.

ASHLAND, O.—F. E. Myers & Bro. Co.

manufacturer of pumps and other devices, has let a contract to George Kratt & Son, Lorain, O., for an addition 68 x 176 feet, five stories. The brass foundry is to be located on the top floor with special roof design to remove fumes from the melting process.

CLEVELAND—Electrical Mfg. Co., 4149 East Seventy-ninth street, has let contract to H. K. Ferguson Co., Cleveland, for a 1-story addition 50 x 100 feet.

CLEVELAND—H. N. White Co., 5225 Superior avenue, has let contract to the H. K. Ferguson Co., Cleveland, for an addition 30 x 60 feet, one story, with foundations for two additional.

CLEVELAND—Surety Investing Co., 16112 Euclid avenue, is building a printing crafts structure on East Twenty-second street for occupancy of the J. C. Hub Mfg. Co. and the Central Electrotype Co. The Austin Co., Cleveland, designed and supervised construction.

NORWOOD, O.—American Laundry Machinery Co., R. M. Burton president, will build a 2 and 3-story plant and office building.

TOLEDO, O.—Toledo Machine & Tool Co., H. J. Hinde president, 1426 Hastings street, is building a machine shop 60 x 120 feet.

OKLAHOMA CITY, OKLA.—Non-Clog Pipe Co. has been incorporated with $10,000 capital by O. A. Bassett, T. K. Vance and John Polhemus.

OKLAHOMA CITY, OKLA.—Durham Weather Strip Co. has been incorporated with $200,000 capital to manufacture metal weather strip by Joseph C. Dunham, Colcord building, and Warren K. Snyder.

TULSA, OKLA.—Hinterliter Tool Co., Admiral and Madison streets, is building a 1-story plant 50x140 feet.

CHESTER, PA.—Baldt Anchor, Chain & Forge Corp. has been incorporated with $100,000 capital in Delaware to take over the plant and business of the Baldt Anchor & Chain Co., which was bought recently by the Boston Iron & Metal Co., Chester. A general foundry and machine shop will be operated.

PHILADELPHIA—Everett-Saxton has been incorporated with $5000 capital to manufacture iron and steel and metal devices by George P. Pilling, treasurer, William S. Pilling and John A. Jardine, 311 South Hicks street.

PITTSBURGH, PA.—American Steel Band Co., 1400 Nixon street, will build a 1-story addition to its plant.

WILKES-BARRE, PA.—Gates Foundry Co., 71 Parrish street, has let contract to A. M. Hildebrand, 91 Wood street, for a 1-story foundry, 54 x 102 feet on Gorlear street.

PROVIDENCE, R. I.—W. H. Coe Mfg. Co., 74 Weybosset street, is taking bids for a 2-story plant for the manufacture of gilding wheels, gold leaf, etc., at Ship and Clifford streets. Perry & Whipple, Hospital Trust building, are architects.

SPARTANBURG, S. C.—Gilmore Iron Works has been incorporated with $10,000 capital by E. C. Gilmore and Isaac Andrews, East Main street.

DALLAS, TEX.—Gulberson Co., 1025 Pennsylvania street, manufacturer of oil well specialties, will build an addition to increase production.

BRISTOL, VA. — Fergs Stamping Co., Inc. has been incorporated with $15,000 capital by R. O. Ferguson and G. H. Davant.

PETERSBURG, VA.—Industro-Electric Tools Inc. has been incorporated with $25,000 capital by T. F. Smith and C. B. Smith.

ELLENSBURG, WASH.—City council has decided to expend $250,000 in improvements to the municipal light plant to include equipment at the head works and an auxiliary plant.

OKANOGAN, WASH.—Douglas and Okanogan counties have granted a franchise to W. E. Buell, Seattle, for a steel toll bridge across the Columbia river between Brewster and Bridgeport. Plans will be forwarded at once to organize a company to undertake construction.

SEATTLE.—Pacific Coast Steel Co. will build a 1-story addition at 4001 Twenty-eighth avenue.

SEATTLE, WASH.—Bids will be opened by the navy department, Washington, D. C., Oct. 28, for a one story fireproof storehouse, 60 x 200 feet, at the Puget Sound navy yard. The structure will be of steel frame and concrete floors.

TACOMA, WASH—Enterprise Foundry Co. is building a new brass shop 50 x 100 feet at 1111 St. Paul avenue. Walter H. Christian is president.

CLARKSBURG, W. VA.—National Carbon Co., 30 East Forty-second street, New York, is making extensions to its plant, including a furnace, overhead crane and other facilities.

MORGANTOWN, W. VA.—Sanitary Tank Mfg. Co. has been incorporated with $100,000 capital by A. M. Darquenne, J. W. Wiles, C. H. Maxwell, C. W. Huston, and K. J. Rohr.

PARKERSBURG, W. VA.—Kanawha Specialties Co. has been incorporated by C. W. Pettigrew, Parmaco street, and others and will take over the plant and business of the Fuel City Mfg. Co., producing stamped steel materials.

WARWOOD, W. VA.—Warwood Tool Co., Wheeling, W. Va., whose plant is here, has bought a site at Baltimore, Md., on which a plant will be built.

BROKAW, WIS.—The Allis- Chalmers Mfg. Co., Milwaukee, has been awarded the contract for a 1000-kilowatt steam turbine and condensor for the $125,000 bleach plant being erected as an addition to the local mills of the Wausau Paper Mills Co., Wausau, Wis. The motors and switchboards were let to the Westinghouse Electric & Mfg. Co. There remain to be purchased three 1000-gallon and two 150-gallon pumps. L. A. DeGuere, Wisconsin Rapids, Wis., is consulting engineer.

CUDAHY, WIS.—Federal Rubber Co. of Illinois is building a plant 141 x 220 feet, general contract to Thomas Dideritz, 1591 Second street, Milwaukee.

MARSHFIELD, WIS.—Frank Felhoefer & Co. have taken the general contract to build a 1-story addition to the machine and automobile repairshop of M. J. Vanderhoff at Sixth and Central streets. It will cost about $25,000.

MILWAUKEE—The city of Milwaukee is in the market for a power hoist for the mu-

Machinery Exports Continue Heavy

EXPORTS of metalworking equipment in August continued the high rate of July, according to further analysis of reports by the department of commerce. United Kingdom took the largest individual lot, buying 58 *thread cutting and screw machines. Russia was the largest buyer of bending and power presses, taking* 12. *Germany purchased* 21 *external grinding machines and* 17 *internal type. Further comparisons of exports by countries follows:*

	External grinding machines	Internal grinding machines	Bending and power presses	Thread cutting and screw machines	Punching and shearing machines	Power hammers
Argentina	3	....	....	2	....	3
Australia	6	....	....	7	4	2
Belgium	1	....	....	....	....	....
Brazil	....	....	....	3	2	1
British South Africa	....	....	....	2	....	....
Belgian Kongo	....	....	....	....	1	....
British India	1	....	....	1	....	1
Canada	3	....	5	5	7	....
Colombia	....	....	....	2	....	....
Cuba	4	....	4	....	1	....
Czechoslovakia	....	1	....	....	....	....
Dominican Republic	....	....	....	2	....	....
Dutch West Indies	....	....	....	....	3	....
Finland	1	....	....	....	....	....
France	5	8	2	1	4	....
Germany	21	17	3	7	1	....
Italy	9	7	2	9	....	2
Jamaica	....	....	....	1	....	....
Japan	2	....	2	1	....	2
Java and Madura	....	....	....	1	....	....
Mexico	2	....	3	3	3	1
Netherlands	2	....	....	1	....	....
Panama	....	6	....	....	....	....
Poland and Danzig	1	....	....	....	....	....
Portugal	....	....	....	....	....	1
Russia	....	....	12	1	....	1
Spain	1	....	....	1	....	....
Sweden	2	....	....	1	....	....
Switzerland	....	....	....	8	....	....
Salvador	....	....	....	....	1	....
Siam	....	....	....	6	4	....
United Kingdom	11	3	6	58	4	2
Venezuela	....	....	1	1	....	....
Totals	75	42	40	128	36	16

nicipal shop at First avenue and East street.

MILWAUKEE—Bids are being taken until Nov. 16 by the United States engineer's office here for the complete construction of one 15-ton steel derrick boat.

MILWAUKEE—An addition costing about $20,000 will be built by the Federal Pressed Steel Co. at its main works at Keefe avenue and North Pierce street.

MILWAUKEE—The Vilter Mfg. Co., Milwaukee, has received the contract for the ice and refrigerating installation in the new east wing of the South View Isolation hospital here at $3250.

NEENAH, WIS.—H. S. Zemlock, city clerk, is taking bids for a municipal garage and service building, tool house and storage, costing about $35,000. The work is in charge of McMahon & Clark, architects and engineers, Menasha, Wis.

OSHKOSH, WIS.—Wisconsin Parts Co., W. F. Rockwell manager, 571 High street, is building a 1-story addition 60 x 175 feet.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 46.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	41.00 to 43.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	$40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK
Per Net Ton Seaboard Base

9 x 4½ x 2½	$65.00

CHROME BRICK
(Per Net Ton)

9 x 4½ x 2½	45.00 to 48.00

Business in Canada

VANCOUVER, B. C.—Vancouver Oil Refining Co., Ltd., is asking tenders for trestle and pier on its waterfront site where construction of a $100,000 oil refining plant is now under way.

HAMILTON, ONT.—Bids will be received by City Clerk S. H. Kent until Nov. 16, for sewage pumps, pipe and valves for Gage Avenue station.

KITCHENER, ONT.—The Hamilton Bridge Co., Hamilton, Ont., has been awarded steel contract for addition to the factory here for Schreiters, Ltd., King street west.

OTTAWA, ONT.—Fire at the Bishopric Mfg. Co., resulted in damage to the plant, equipment and machinery, estimated at $50,000. Owners will rebuild without delay.

MONTREAL, QUE.—The Dominion Square Garage has started work on a $300,000 garage here. Equipment and tools will be purchased

MONTREAL, QUE.—The Dominion Bedstead Co., 300 Atlantic avenue, will build a manufacturing plant here. J. H. Noel, 339 Bleury street, is architect and is receiving tenders.

New Trade Publications

BUCKETS. — Orange peel and clam shell buckets are described in two bulletins by the Hayward Co., New York, fully illustrated as to construction and operation.

HIGH SPEED FANS.—Illustrations of its high speed fans and parts, with full engineering data are included in a bulletin by the American Blower Co., Detroit.

BLOWERS AND EXHAUSTERS.—Multistage contrifugal type blowers and exhausters manufactured by the Allen & Billmyre Co., Inc., New York, are described in detail in a bulletin by that company.

MOTOR DRILLS.—A new standard duty drill with a capacity of ½ and ⅝ inch in steel is described in a bulletin by the Hisey-Wolf Machine Co., Cincinnati, O. Details of its construction are shown and fully described.

CLAM SHELL BUCKETS.—Varied uses of a clam shell bucket in the foundry are pointed out and illustrated in a bulletin by the Hayward Co., New York. It is profusely illustrated and its method of operation is shown in detail.

CATERPILLAR TRACTOR.—Use of its tractors for a wide variety of purposes is illustrated in a folder by the Caterpillar Tractor Co., San Leandro, Calif. Illustrations furnish most of the information, with enough text to supply the key.

SYNCHRONOUS MOTORS.—Belted synchronous motors for varied uses are described in a bulletin issued by the Electric Machinery Mfg. Co., Minneapolis. Both the direct connected exciter and the separate exciter types are shown and the principal features of construction are noted. These motors can be used to drive air compressors, pumps, line shafts, fans, blowers, etc.

REFRACTORY BOND.—A circular describing its bonding material to be used for setting fire brick has been issued by the Chicago Fire Brick Co., Chicago. It is said to have the same co-efficient of contraction and expansion as electric furnace fire brick and produces a homogeneous wall.

LIFTS AND STACKERS.—Lewis-Shepard Co., Boston, has issued its annual bulletin of practice with its material handling equipment. Standard and new uses and special adaptions are covered. It suggests further uses of these devices beyond present practice.

ROTARY DISPLACEMENT METER.—Development of its meters from pressures of two pounds or less to larger units to handle pressures of 10 to 50 pounds is sketched in a bulletin by the Connersville Blower Co., Connersville, Ind. Installations in gas plants are shown.

MATERIAL HANDLING.—The Link-Belt Co., Chicago, has issued a 32-page booklet show' ing various types of handling equipment for use in foundries. Conveyors, sand reclaimers, and sand conditioners are described. The booklet contains many illustrations of equipment in use.

SLING CHAIN LOADS.—Safe loads for sling chains are presented in a blueprint tabulation by the S. G. Taylor Chain Co., Chicago. Changes in load weight by altering the angle of the chains are illustrated graphically and safe loads for various angles are tabulated.

SAND BLAST MACHINES.—The Pangborn Corp., Hagarstown, Md., has issued an 8-page bulletin describing a new sand blast barrel, ventilation and dust suppression apparatus, dust exhauster and sand blast abrasives. The important features and application of each to the foundry is given.

POWER SQUARING SHEARS.—Accurate cutting of sheet metal on its power squaring shears is presented as a matter of economy by the Niagara Machine & Tool Works, Buffalo, N. Y., in a bulletin just issued. A number of other products of this com' pany are pictured in the same bulletin.

WATER TUBE BOILERS.—Boilers built by the George T. Ladd Co., Pittsburgh, are described in detail with many diagrams and halftones of typical installations, in a bulletin no wbeing sent out to 'prospects. Various types are shown with their several applications to varied uses.

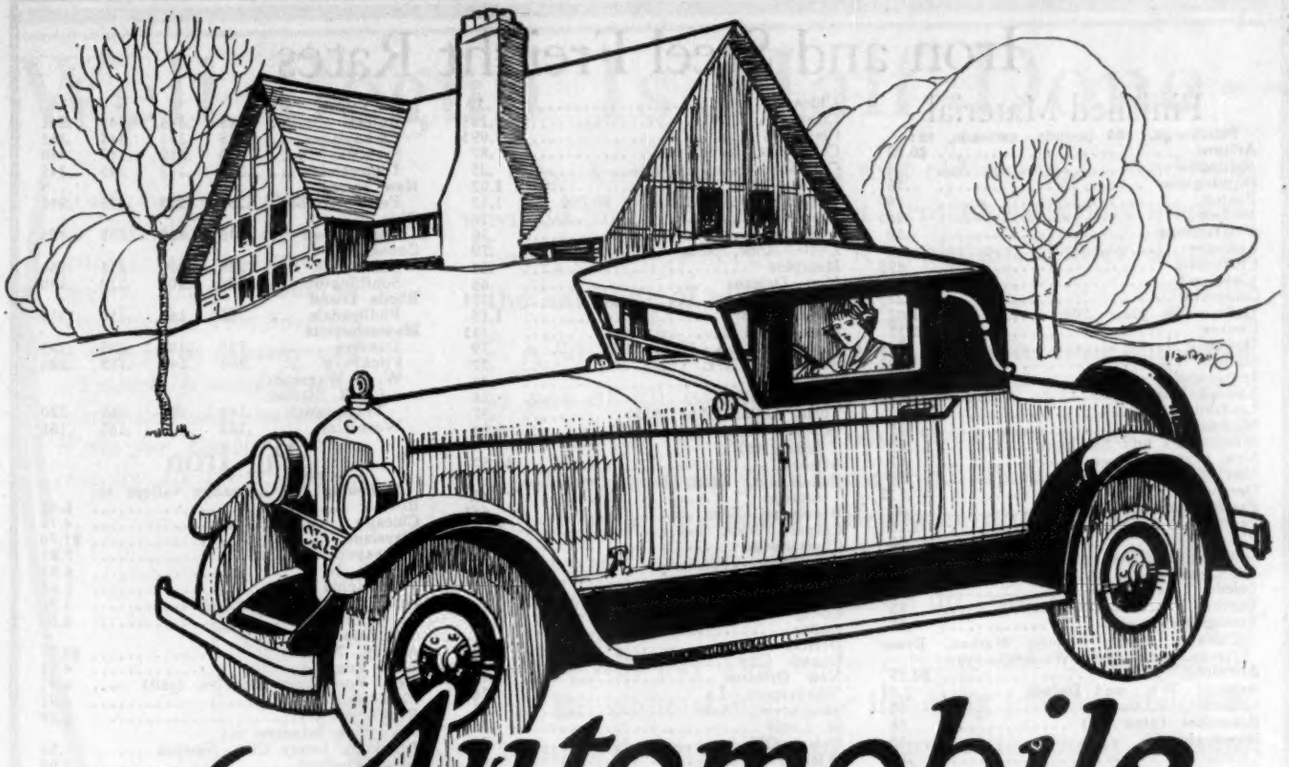
PYROMETERS. — Potentiometer pyrometers are described in a 55-page catalog published by Leeds & Northrup Co., Philadelphia. The catalog is well illustrated with photographs of equipment installed in various industries. The use of pyrometers for heat control is described. A list of accessories and prices is given also.

HAND SAWS.—How a Disston hand saw is made, from the blank to the completed tool is described in an interesting pamphlet by Henry Disston & Sons, Philadelphia. The process is followed step by step and reasons are given for the care taken to produce a balanced and highly refined result.

SPECIAL STEELS.—Vanadium-Alloy Steel Co., Latrobe, Pa., has prepared and is issuing a waterproof card to be hung in shop or office, containing a list of recommended uses and heat treatment of its various brands of high speed, carbon and alloy tool steels. On the reverse are reproductions of its brands, a chart of heat colors and a table of temperatures for carbon steels.

WINTER CONSTRUCTION.—A review of opinion on the question of concrete construction in all weathers has been compiled by the Portland Cement Association, Chicago, and is being sent out in an effort to promote continuous construction through the winter. It presents numerous authoritative opinons in favor of eliminating the usual stoppage in cold weather.

GRINDERS.—Wilmarth & Morman Co., Grand Rapids, Mich., has issued a circular describing improvements and changes in one of its super surface grinders. Removal of a plate from the front of the machine gives access to all mechanical parts. The motor in the base is accessible from both sides and is connected to the ball bearing drive by a flexible coupling. Other devices produced by this company are also illustrated in the circular.



Automobile Sheets

Metal Furniture Sheets
Electrical Sheets
Pickled and Annealed
Enameling Stock
Milk Can Stock
Wabik Metal Stock
for Vitreous Enameling

SHEET BARS, INGOTS

Smoothness of finish plays an important part in the sale of an automobile. For this reason you can enhance the sale of your product by using Mansfield Steel Sheets—sheets of remarkable smoothness and durability.

The reasons for Mansfield excellence are: (1)—Scientific treatment of the metal in the open-hearth furnace. (2)—Our ingots are of exceptional purity—low in Sulphur and free from "pipes", seams, etc.

Mansfield Automobile Sheets are made in all qualities of Body Stock, Flat Fender and Wood Stock, Radiator Casing Stock, Crown Fender Stock.

Mansfield Sheet & Tin Plate Company

Member of Sheet Steel Trade Extension Committee

Mansfield, Ohio

12-237 General Motors Bldg., Detroit, Mich.
1372 Wrigley Bldg., Chicago, Ill.
410 Pierce Bldg., St. Louis, Mo.
1106 National City Bldg., New York, N. Y.
2002 Union Trust Bldg., Cleveland, Ohio
1504 West Venango Street, Philadelphia, Pa.

District Sales Offices

1403 Merchants Bank Bldg., Indianapolis, Ind.
1020 Union Trust Bldg., Cincinnati, Ohio
640 Endicott Bldg., St. Paul, Minn.
237 Rialto Bldg., San Francisco, Calif.
509 Wilcox Bldg., Los Angeles, Calif.
1426 L. C. Smith Bldg., Seattle, Wash.

Iron and Steel Freight Rates

Finished Material

Pittsburgh, 100 pounds, carloads, to:

Atlanta	$0.58
Baltimore	.31
Birmingham	.58
Boston	.365
Buffalo	.265
Chattanooga	.50
Chicago	.34
Cincinnati	295
Cleveland	.19
Columbus	.255
Dallas (tin plate .90)	1.02
Denver	1.15
Detroit	.295
Duluth	.60
Indianapolis	.31
Kansas City	.735
Louisville	.33
Milwaukee	.37
Minneapolis and St. Paul	.60
New Orleans	.67
New York	.34
Omaha	.735
Pacific coast (tin plate)	.90
Pacific coast (all rail)	1.15
Philadelphia	.32
South Bend, Ind.	.32
St. Louis	.43
Toledo	.27
Topeka	.85
Youngstown	.11

Chicago, Gary, Indiana Harbor, Evanston, Joliet, and Waukegan to:

Aberdeen, S. D.	$0.55
Ashland, Wis., and Duluth	3.05
Atlanta	.58
Beaumont (pipe .49)	.68
Birmingham	.53
Cairo, Ill.	.245
Caspar, Wyo. (pipe .835)	1.00
Cedar Rapids, Iowa (wire .345)	.245
Chattanooga	.49
Dallas (pipe .69)	.84
Denver	.83
Des Moines, Iowa	.295
Detroit	.275
Evansville, Ind.	.28
Grand Rapids, Mich	.26
Green Bay, Manitowoc, Wis.	.205
Indianapolis (pipe .25)	.155
Kalamazoo, Mich	.22
Kansas City (pipe .35)	.415
Madison, Wis.	.115
Memphis (all rail)	.42
Memphis (rail and river)	.35
Milwaukee	.08
Minneapolis, St. Paul; Waterloo, Iowa	.275
Muskogee, Okla. (pipe .60)	.69
New Orleans (all rail)	.57
New Orleans (rail and river)	.47
Omaha (pipe .35)	.415
Pacific Coast (tin plate. 75)	1.00
Peoria (pipe .155)	.13
Pine Bluff, Ark. (pipe .55)	.46
Rock Island, Ill.	.155
Sioux City, Iowa, St. Joseph, Mo., and other Missouri river points (pipe .35)	.415
South Bend, Ind. (sheets .13)	.185
St. Louis	.175
St. Paul	.275
Terre Haute, Ind. (pipe .24)	.155
Topeka, Kans. (pipe .435)	.51
Tulsa, Okla. (pipe .60)	.69
Waterloo, Iowa	.275

Cleveland to:

Akron	$0.09
Atlanta	.57
Baltimore	.37
Boston	.43
Buffalo	.25
Canton	.095
Chattanooga	.50
Chicago	.30
Cincinnati	.27
Columbus	.215
Detroit (rail)	.235
Indianapolis	.28
New Orleans	.65
New York	.40
Philadelphia	.38
St. Louis	.36
Toledo	.20

Youngstown to:

Akron	$0.095
Atlanta	.58
Baltimore	.345
Beaumont, Tex. (pipe .67)	.87
Boston	.405
Buffalo	.25
Canton	.095
Caspar, Wyo.	1.15
Chattanooga	.50
Chicago	.32
Cincinnati	.285
Cleveland	.095
Coffeyville, Kans.	.87
Columbus	.25
Dallas (pipe .855)	1.02
Denver (pipe. 1.115. Min. 60,000 lbs.	1.13
Detroit	.265
Indianapolis	.30
Little Rock, Ark. (pipe .75)	.70
Memphis	.54
New Orleans	.66
New York	.375
Pacific coast	1.15
Philadelphia	.355
Shreveport, La. (Pipe .84)	.79
Smackover, Ark. (Pipe .82)	.77
St. Louis	.38
Toledo	.24
Tulsa, Okla. (Pipe .855)	.87
Wichita, Kans. (pipe .855)	1.02

Lorain to:

Atlanta	$0.57
Bakersfield, Long Beach, and Los Angeles	1.15
Beaumont, Tex.	.655
Caspar, Wyo.	1.125
Chattanooga	.50
Chicago	.36
Cincinnati	.265
Cleveland	.07
Coffeyville, Kans.	.70
Dallas	.84
Detroit	.215
Kansas City	.63
New Orleans	.65
*Shreveport, La.	.76
Smackover, Ark.	.77
St. Louis	.355
Tulsa, Okla.	.84
Wichita	.84

*Minimum 80,000 pounds.

From:	Coatesville, Pa.	Bethlehem, Pa.	Harrisburg Pa.
To:			
Baltimore	$0.145	$0.19	$0.145
New York	.175	.145	.19
Philadelphia	.10	.13	.145

From:	Lebanon, Pa.	Phoenixville, Pa.	Pottsville, Pa.
To:			
Baltimore	$0.155	$0.155	$0.19
New York	.10	.175	.19
Philadelphia	.13	.095	.145

From	Johnstown, Pa.	Claymont, Pa.	Pencoyd, Pa.
To:			
Baltimore	$0.285	$0.145	$0.155
New York	.32	.175	.175
Philadelphia	.295	.08	.06

To:—	Boston	Worcester	Providence	New Haven
From				
Pennsylvania				
Catesville	$0.255	$0.255	$0.255	$0.255
Harrisburg	.255	.255	.255	.255
Johnstown	.350	.350	.350	.350
Philadelphia	.255	.255	.255	.255
Phoenixville	.255	.255	.255	.255
Pittsburgh	.365	.365	.365	.365
Pottsville	.255	.255	.255	.255
Reading	.255	.255	.255	.255
South Bethlehem	.255	.255	.255	.255
New York				
Buffalo	.345	.345	.345	.345
Lackawanna	.345	.345	.345	.345
Syracuse	.310	.310	.310	.310
Tonawanda	.345	.345	.345	.345
New Jersey				
Perth Amboy	.255	.255	.245	.245
Ohio				
Youngstown	.405	.405	.405	.405
Connecticut				
Collinsville	.220	.210	.215	.160
Southington	.220	.205	.210	.140
Rhode Island				
Phillipsdale	.165	.165	.110	.215
Massachusetts				
Danvers	.750	.100	.195	.225
Fitchburg	.950	.145	.185	.220
W. Wareham (R. R. Station Treamount)	.165	.190	.165	.220
Worcester	.165	...	.165	.165

Pig Iron

Mahoning and Shenango valleys to:

Boston	6.43
Chicago	4.79
Cleveland	$1.76
Minneapolis, St. Paul	7.83
Newark, N. J.	6.03
Philadelphia	5.63
Pittsburgh	1.76
St. Louis	5.80

Buffalo to:

Albany, N. Y.	$2.27
New England (rail)	4.91
New York and Brooklyn (rail)	4.91
Philadelphia	4.91
Rochester	1.39

Virginia furnaces to:

Brooklyn, Jersey City, Newark	5.54
New England	5.92
Philadelphia	$5.17

Birmingham, Ala., to:

Boston (rail)	$9.61
Boston (rail and water)	6.91
Chicago	6.01
Cincinnati	4.05
Cleveland	6.01
Jersey City	8.05
Louisville, Ky.	3.72
Minneapolis, St. Paul	8.77
New York	9.24
Newark	8.28
Philadelphia (rail)	7.81
Philadelphia (rail and water)	6.01
Pittsburgh	6.84
St. Louis	4.42

Chicago to:

Des Moines	$4.24
Milwaukee	1.00
Minneapolis, St. Paul	3.04
Moline, Ill.	1.76
Omaha	4.97
St. Louis	4.42

Ironton and Jackson, O., to:

Chicago	$4.79
Cincinnati	2.27
Cleveland	3.02
Detroit	3.21
Indianapolis	2.90
Minneapolis, St. Paul	7.83

Export Rail Rates

Manufactured Iron and Steel

Cents per 100 pounds in Carloads

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Chicago	$42.50	$39.50	$42.50	$40.50	$50.00
Cincinnati	37.00	34.00	37.00	35.00	72.00
Cleveland	30.00	27.00	30.00	28.00	72.00
Pittsburgh	25.50	22.50	25.50	23.50	72.00
South Bethlehem	11.00	14.50	....	10.00	....
Wheeling	25.50	22.50	25.50	23.50	72.00
Youngstown	28.50	25.50	28.50	26.50	72.00

Billets

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Chicago	$7.10	$6.50	$7.10	$6.70	$11.20
Cincinnati	6.20	5.60	6.20	5.80	16.13
Cleveland	5.00	4.40	5.00	4.60	16.13
Pittsburgh	4.30	3.70	4.30	3.90	16.13
Wheeling	4.30	3.70	4.30	3.90	16.13
Youngstown	4.70	4.10	4.70	4.30	16.13

Rails

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Chicago	$6.75	$6.15	$6.75	$6.35	$11.20
Pittsburgh	4.00	3.70	4.00	3.80	15.46
Youngstown	4.20	3.90	4.20	4.00	...

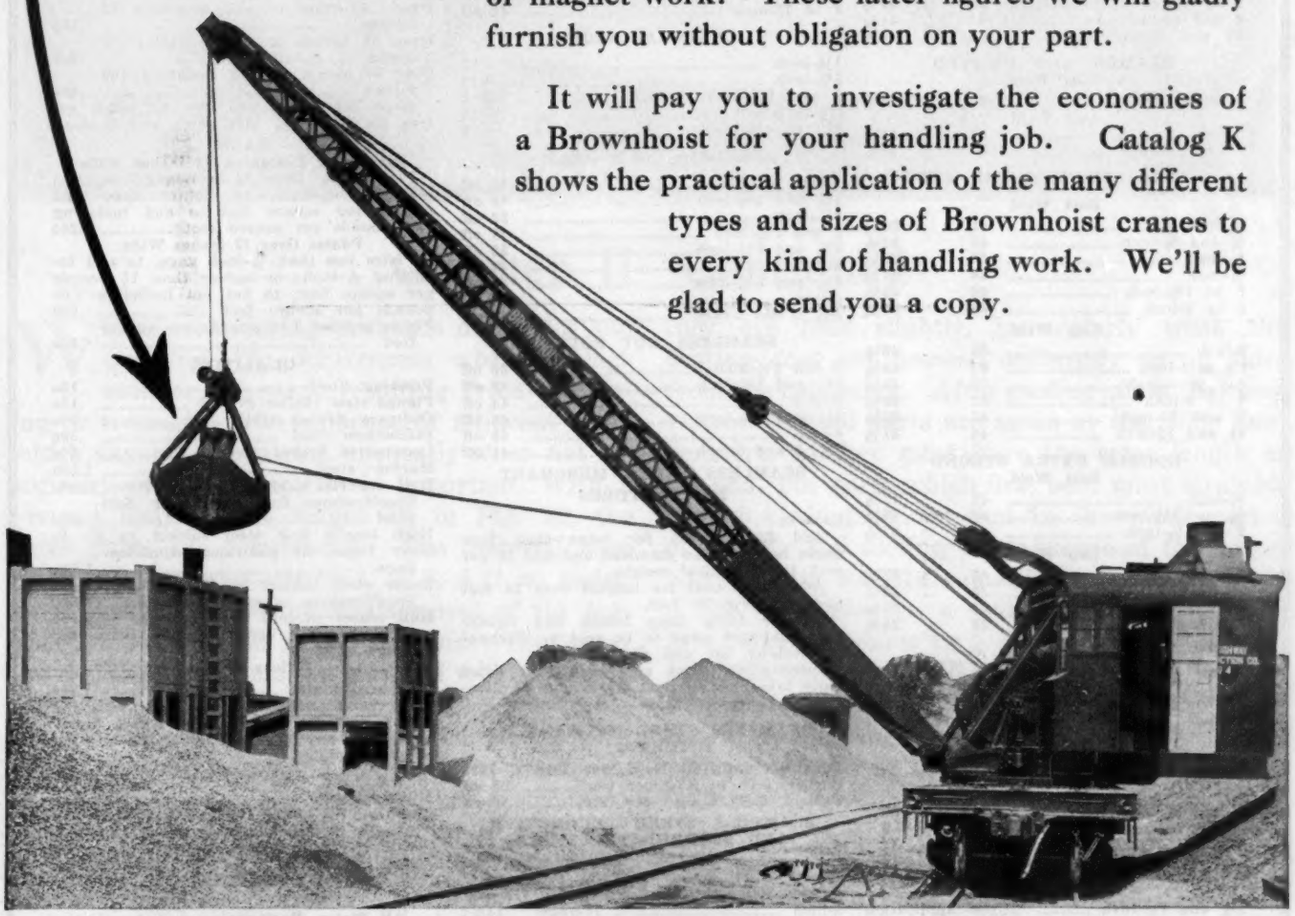
Well Begun Is Half Done--

Brownhoist Clamshells are ruggedly built, fast operating, and are excellent diggers. They are built in sizes ranging from one-half to two yards capacity and are especially suited for sand gravel and slag handling. Write for Booklet 8-24—it tells all about them.

You know the truth of that old saying. And you would find, as hundreds of Brownhoist crane owners have, that nowhere does it apply any better than in the handling of materials.

A 50 per cent saving in both handling time and costs is not at all unusual for Brownhoist crane owners. You can easily determine what your own savings would be by comparing your present handling costs with the total operating costs of a Brownhoist on bucket, hook, or magnet work. These latter figures we will gladly furnish you without obligation on your part.

It will pay you to investigate the economies of a Brownhoist for your handling job. Catalog K shows the practical application of the many different types and sizes of Brownhoist cranes to every kind of handling work. We'll be glad to send you a copy.



The Brown Hoisting Machinery Company, *Cleveland, Ohio*

Branch Offices: New York, Chicago, Pittsburgh, San Francisco and New Orleans.

BROWNHOIST

MATERIAL HANDLING MACHINERY

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾ to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾ to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent	55 off
Carbon, 0.30 to 0.40 per cent	50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per Pound for Width or Diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square feet, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼ inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including ⅛-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Pdates Over 72 inches Wide

Plates less than ¼-inch gage, to and including ⅛-inch; or lighter than 11 pounds per square fcot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing Steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept., or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH or DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c